



THIRTY-NINE ARTICLES ON
GARDENING.



Where Calochortus and Opuntia grow in British Columbia (See page 8).

[Frontispiece.]

THIRTY-NINE ARTICLES ON GARDENING

By EMMELINE CROCKER, F.L.S.

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With Seven Coloured Plates



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TO
ALL PLANT LOVERS

THIS WORK IS
DEDICATED.



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THIRTY-NINE ARTICLES ON GARDENING.

I.

WINTER-FLOWERING IRIS.

March 13th.

NO plants give us the pleasure of their flowers more continuously than *Iris*. All are beautiful, most are of moderately easy, and many of very easy culture. The favourite of this season is the ever-faithful and gloriously beautiful *Iris unguicularis*, or, as it is most commonly and less accurately called, *Iris stylosa*. Of extremely easy culture, this inexpensive plant gives us our first blooms in *October*, and steadily provides us with a succession of them till *April*. *Iris unguicularis*, a term applied to petals when stalked (from Latin *unguis*, a claw), is a native of *Algeria*, where it appears to flower in *January*. Of it there are said to be two *white* forms. One I know well; the petals are of firm texture, with a handsome *orange signal*. This word is one specially used of *iris*, and applies to the spot of colour on the falls (the three large petals or outer segments) of many *iris*, signalling to insects the part of the flower they wish to reach to gather honey, in collecting which they deliver the *pollen* from the specimen last visited on to the *stigma* of a fresh

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blossom, and thus assist *cross-pollination*. There are several forms of this *iris*, distinguished chiefly by colour. *Marginata* is a bright *lilac* feathered with *white* on the falls. There is a variety of this with a good *white* margin to the fall. *Iris unguicularis* var. *speciosa* is a very handsome flower, of a deep rich *purple*, and *lilacina* is larger and more loosely put together, and particularly useful, as it comes into flower later than the *type*. The blossom is delightfully *fragrant*. These flowers appear to be growing on a long stalk, which is really a tube enclosing an elongated *style*; hence the name *stylosa*. Three spring from a single stem only just above, or even a little below the level of the ground, and blossom in succession. In gathering one it is well to be careful that this stem does not get injured, or the other two buds suffer. The leaves remain on the plant for some time, and may almost be called *evergreen*. They are one and a half to two feet long, not wide, and of a good rich colour. The flowers spring up among them.

Plants of *Iris unguicularis* should be bought about May, and put in *touching* the foot of a south wall. I emphasise 'touching,' because I have so often asked that they might be planted close to it, and have usually found a space of some inches between the wall and the specimen, where moisture can creep in and become very injurious. When firmly settled give a good soaking of *water*, and leave alone. Occasionally, if the summer be very dry, give another soaking—never a little, that is harmful. In *November* begin to look for flowers, which should always be gathered in bud, for the texture of the petals is frail, and easily

WINTER-FLOWERING IRIS.

blemished by wind or insects. The blossom opens well in water. The frail *petals* of a mature flower would inevitably be destroyed by being packed; but the unfolded bud travels well. The only treatment the plants need is to be left alone and undisturbed. At Royal Botanic Gardens, *Glasnevin*, Dublin, there is a magnificent specimen, which often has between forty and fifty blooms open at one time. Apparently unheeded, the plant grows on from year to year, and every season yields a grand succession of flowers. In *England* this iris is to be bought at a small cost, in *France* for a much smaller, and from *Italy* it may be had at a ridiculously low price. No garden should be without it; the root is not a *bulb*, it is a *rhizome*—or underground stem.

Iris reticulata in sheltered positions is now in blossom, and is one the most admired of *bulbous iris*. It resembles *Iris unguicularis* in being beardless, and has a glorious *orange* signal on the richest of *purple* falls. It has a delightful *fragrance*. Having once seen the grand colouring, one could hardly fail to recognise the species. A very distinctive feature is the four-angled leaf, terminating in a sharp point. This plant is said to be of easy culture, but I have found it capricious. It is a native of the *Caucasus*. There are several varieties. *Var. Krelagei* is handsome, a redder purple. It flowers in *February* and later, and often before the *type*. *Iris reticulata var. Histrio* also flowers about the same time, and is exquisitely beautiful. It was introduced from *Palestine* in 1873. All these are inexpensive, very welcome, and most beautiful flowers.

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II

ROCK PLANTS.

March 27th.

TO the happy possessor of an Alpine garden a joyous time is coming, for many *species* of these autocratic little plants will now be delighting us with their bright flowers, and will need watching and tending after the winter storms and rains. The word ‘*Alpine*’ is perhaps not universally understood when used *botanically*, and to make its meaning clear, I quote from the invaluable work, *Flowering Plants and Ferns*, by *J. C. Willis*. He says: ‘The mountain zone above the tree limit is termed the Alpine zone, and its characteristic plants are termed Alpine plants. The general habits and structural features of Alpine plants are much the same all over the world.’ In *Britain* trees rarely grow at an altitude of more than two thousand feet. Naturally, these Alpines grow in such a position as to insure perfect *drainage*, and in planting them it must be remembered that this is a very important point. More are lost from *damp* than *cold*. In their mountain homes for many months they are kept warm and covered by snow. The snow melts quickly with the heat of the sun, thoroughly moistening the *roots* and surrounding soil, but as the natural drainage is perfect they do not remain damp.

They are (on what is termed a rockery) often grown in ‘*pockets*,’ a small space surrounded by stones,

ROCK PLANTS.

so that each can have its individual bed and soil ; and this is necessary, for, as I said, they are autocratic little plants, and demand either lime, granite, sandstone, or loam, &c. Be careful that no cracks are left between these stones, for wind and draughts blowing through them may do much harm. Certain genera are particularly impatient of damp. All the crusted or silver *saxifrages*, e.g., *Sax. cochlearis* and *Sax. Grisebachii*, like stones about them, and now need looking over and supplying with fresh stones. They prefer a sunny slope.

The mossy *saxifrages*, such as *Sax. Guildford Seedling*, *Sax. Fergusonii*, &c., on the other hand, prefer shade ; and if you wish to keep your plants in good condition and shape, cut back the flowers right to the end of their stem immediately after flowering. This rule also applies to many other genera ; *Aubrietia*, *Phlox*, *Thymus*, *Arabis*, *Dianthus*, *Iberis*, *Draba*, *Campanula*, and others will straggle and become unsightly and badly grown plants if not treated drastically in this manner. For a week or so the effect of this cutting-back is ugly, but the subsequent result more than repays one for the temporary disfigurement. For instance, a plant of *Æthionema grandiflorum* was full of *fruit* (or *seed*). The owner wished to increase his stock of the variety, and requested that all the seed should be allowed to ripen for next season's use. By a mistake every atom was closely cropped off with shears ! Naturally some annoyance was expressed, but in the following *June* the beauty of the glorious mass of *pink* flowers falling over the rocks more than compensated for the previous disappointment. The plant had been spared the effort and exhaustive process of maturing

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the heavy crop of *seeds*, and had more energy to throw into the next season's flowering.

Most Alpines are small, dwarf, compact plants ; and so many of individual habit and interest may be grown in a limited space that any one with a small or medium-sized garden can get more pleasure from growing them in a rockery than from any other form of horticulture.

The *position* in which certain plants succeed best is worth a few words ; for instance, *Ramondia*, *Haberlea*, and others thrive best if planted between two stones placed vertically, with their leaves spreading over the stones and in shade. *Geranium argenteum*, a lovely little Alpine with silver leaves and large rosy flowers, a native of the Alps, needs sun, good *drainage*, and likes to be between stones placed horizontally. By 'Geranium' I do not mean the plant used for bedding-out purposes. This is really a *Pelargonium*, as will easily be seen ; for the distinctive mark of this plant is found if you pull out the two *posterior petals*, usually larger than the others, and then there will be noticed a tube penetrating the stalk of the flower. In a *Geranium* the petals are all of equal size, and the tube does not occur. *Erodium* is a very near relation of the *Geranium*, but may easily be distinguished by a botanist.

PLANTS FROM THE ROCKIES.

III.

PLANTS FROM THE ROCKIES.

April 10th.

THOSE who love plants, and wish to really enjoy their beauty, and learn many important lessons as to how to grow them, will find their trouble well repaid if they can spare the time for a trip to the Canadian Rocky Mountains. For here one sees growing in bewildering profusion many of our favourite and most precious species. The season of blossom in these mountains is from *May* to *September*. In *August* the slopes and mountains are a glow of pink *Epilobium*, *Veratrum*, *Aquilegia*, and many other species, while the fruits of such beautiful plants as *Dodecatheon*, *Anemone*, and *Erythronium* are to be found in great quantities. This last is difficult to grow in England from *bulbs* brought or sent over, but *seeds* germinate readily.

As one travels westward, *Banff* is the entrance to the Rockies. Arriving there at the end of *May*, the chief object of interest is the glorious Northern terrestrial orchid, *Calypso borealis*, an elegant monotypic genus, first introduced into this country in 1820. It grows luxuriantly in the woods about the Hot Springs Hotel. In our island home it thrives well in half-shady spots on the margin of a *rock-garden* or artificial bog, in a light moist vegetable soil composed of peat, leaf-soil, and sand, and should

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be mulched with cocoanut fibre refuse in winter. It is propagated by offsets.

A train journey of an hour or two brings you to Laggan, within easy driving distance of Lake Louise, where the hotel (which opens about *June 15th*) is excellent, the scenery perfect, and, above all, the flora plentiful. Here one may learn a useful lesson for one's garden. By some unexplained device of Nature, the plants appear to grow in patches or masses of a single colour.

At one turn of the mountain path every flower the eye falls on is one shade or another of *yellow*; the next reveals a valley of *pink*, *mauve*, or *white* (white violas were there—*V. canadensis*, I imagine), *Pyrola*, *Anemone*, *White Gentian*, big, handsome, cream *Vetch*, and *Cornus canadensis*, growing all through the woods, truly lovely in effect; and when yet another turn brings to view a broad sweep of *Aquilegia formosa* and *Castilleja* in every shade of *crimson* and *red*, the eye revels in the feast of colour. This last can be cultivated in this country, and is well worth a place on the rockery.

Kalmia glauca is one of the exquisite shrubs abounding in peat near the hotel, *Pentstemon Menziesii*, *Epilobium luteum*, *Ranunculus*, *Pyrola*, *Saxifraga*, *Gaultheria*, and many others.

Arriving at Hector, you cross the 'Great Divide,' the highest point on the Canadian Pacific Railway. From here the River Bow draws its waters from the eastern side and flows to the Atlantic, the River Columbia from the western side and flows to the Pacific. When the Pacific slopes of the Rockies are

PLANTS FROM THE ROCKIES.

reached, the flora changes entirely. In August the country is aglow with handsome clumps of *Asters*, commonly called *Michaelmas daisies*, of every shape and height.

A grand White form I found, handsomer than any other I have ever seen, and also a very good Mauve variety. They grow in profusion, and evidently require a good open position when planted in a garden. This also applies to *Dryas octopetala*, which flowers and fruits abundantly when surrounded by loose stones. In boggy, moist places *Zygadenus* and *Cassiope* occur, and numberless other charming genera. But perhaps one of the handsomest effects is found at *Glacier*, about thirty hours west by rail. Here a whole mountain-slope is carpeted with *Fatsia horrida*, a hardy shrub introduced into Europe in 1829. It grows from six to twelve feet high, and has thick stems armed with yellow spines. All under and through the huge conifers it grows in handsome profusion, and my experience so far in this country, with its allied species *Fatsia japonica*, is that it succeeds best when planted in the shade. And in striking contrast to this handsome, though fearsome shrub, trailing about in the humblest manner, is lovely *Linnaea borealis*.

But perhaps the gem of the whole neighbourhood is *Rhododendron albiflorum*, healthy, beautiful plants, springing from amongst rocks or boulders, at the side of the faint trail in the mountains, everywhere carpeted by the gems I have mentioned and many others, notably, *Mountain parsley fern*, *Cryptogramme crispa acrostichoides* (I imagine), and the joy is intensified

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by the surroundings being so unspoiled and isolated. I was the first to wander down a trail that had been cut through part of the forest, and the exquisite, fresh, untrodden beauty of the thing was quite satisfying. Very few people stay at Glacier, there is merely an hotel for C.P.R. passengers to get their meals.

Travelling still further west, a matter of some fifteen hours, a small station, *Ashcroft*, is reached, quite a remote neighbourhood. A rough road of twelve miles, following the windings of the *Bonaparte River*, brings you to a choice spot for plants. Imagine the delight of finding large groups of *Calochortus* (or *Mariposa Lily*, as it is sometimes called). They grow in sunny banks, on a southern slope, at a fairly high altitude. The *bulb* is deeply buried in loose shale, stones, and moraine, which provide splendid drainage. No moisture can possibly hang about them, and the difficulty in growing them in this country is caused by being unable to keep the bulbs as well drained and dry as is desirable. Unluckily, I had no opportunity of identifying the species accurately, so I will give no positive opinion about it. The flower was some three inches across, of a pale mauve, on a stem nine or ten inches high.

In this neighbourhood the ground and rocks are thickly covered with *Opuntia*, unluckily at this season out of bloom. It appeared to be a rather decumbent and dwarf form, but this may have been the result of the altitude and other conditions of the environment.

Solidago was growing grandly amongst a handsome tall glaucous grass of firm texture—an *Elymus*, I ima-

SEEDS.

gine. I was shown numbers of plants of *Lewisia rediviva*, though none were then in bloom.

On the *Island of Victoria* there is a most attractive prostrate *Leguminous* plant, a *Lupin* of some kind and very lovely. This is a very inadequate list of plants and their surroundings to be found in the Canadian Rockies.

IV.

SEEDS.

April 17th.

LAST season's *seeds* have now arrived at the final stage of their existence, namely, '*germination*,' or developing into growth, and are preparing in their turn to become plants and *parents*, and in time bear *fruit* and reproduce their species. One can but wonder in handling these atoms of different form, colour, and texture, how it is they are empowered to develop root, shoot, stem, leaf, bud, and flower. What mystery is concealed in that tiny particle, the unravelling of which has defied the greatest scientists and scholars of all ages? The whole subject is pregnant with mystery and interest.

Sowing *seeds* and rearing seedlings form an important part of garden work, and are two of the most interesting sides of it. A few hints concerning the operation may be useful.

When you have decided the quantity and quality of seeds you wish to grow, prepare your pans, boxes, or pots. Put first a good *drainage* of broken crocks, then a covering of loam-fibre or some equivalent, and then

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the *soil* (it is important to remember that different species need different soils). Level the surface of the soil, pressing fairly firmly, give a thorough good soaking of *water*, and then leave the pots for twenty-four hours before using. In sowing the seed, scatter it thinly; very *fine seed*, such as *Begonia*, is better mixed with sand, and sprinkled on the surface through a fine sieve. A good, useful rule is to cover the seeds with twice their depth of finely-sifted soil, finer a good deal than that in which you have sown them. When moisture is needed, plunge the pots to the rim in water, when it will rise up through the crocks and fibre without disturbing the surface of the soil. Some seeds, such as *Acanthus*, *Zea*, *Iris*, and others, *germinate* more quickly if previously soaked for a few hours in warm water. These are rules found useful for growing ordinary plants, but, as I have already said, some species need special care.

Drosera, for instance, likes to be sown in chopped *sphagnum* and sand and a few fine crocks, *Aloe* and *Agave* in a little loam and sand.

When sowing seeds outside, prepare the beds by slightly loosening the soil, making the surface moderately smooth and fine. Then water thoroughly, and leave for twelve hours. Sprinkle the seed very thinly, and cover with fine soil, as already mentioned. The reason for watering the soil first is, that much watering on the seeds may be avoided. The weight of water, if applied after sowing, is likely to carry the seeds down too deeply, or leave them exposed.

It seems always a great pity more seed is not collected and saved in our home gardens. The time

SOUTH AFRICAN HEATHS.

needed is very short, the trouble very little, and one is sure of fresh, clean, good material for next year's plants. When the seeds are ripe, gather and place them where they will get air and not be too dry. When the wet *winter* days come, clean them, gently crush the pods between two pieces of paper, blow softly on the crushed parts; the husks will disperse and the seeds remain. Continue to do this till the seeds are quite separated from any dust, or any undesirable surroundings; if necessary, passing them through a fine *sieve*. Then put them up in packets, *labelled* and dated, and ready for next season's use. Seed *dispersal* is a wonderfully attractive subject, and is in a great measure responsible for the torments we call *weeds*; and these are even so keenly interesting that they must have an article to themselves.

V.

SOUTH AFRICAN HEATHS.

May 1st.

HEATHS or *Erica* 'belong to the natural order of plants *Ericaceæ*,' a family of about fifty genera and fourteen hundred species. Of the genus *Erica*, six occur in the British Isles and about fifteen in *Europe* (especially in the countries bordering on the *Mediterranean*), whilst nearly four hundred and seventy are natives of *South Africa*. A fine collection of these South African varieties was exhibited at a recent show of the Royal Horticultural Society at Vincent Square, the first consignment, I believe, that has ever

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reached this country in *cold storage*. Only the small-blossomed varieties preserved their colour well. On being taken out of the cold storage some dropped their blossoms, but some placed in water resumed their suspended animation, and looked almost as if just cut. Cape heaths were the precursors of orchids in public favour half a century ago. Up to the present time not one has been found really *hardy* in England, and to establish them would be a great achievement. In describing the treatment that suits them best under glass, I hope to give help to any wishing to attempt growing them in the *open*.

An important point in their culture is *potting*. Pot very firmly with clean fibrous peat and sharp sand. Only re-pot when absolutely necessary; disturb the *roots* as little as possible. When a plant has become established and has reached a fair size it can remain for four or five years, provided it is top-dressed with peat and sand twice a year; once is hardly enough.

Watering is an all-important matter, and needs much experience. In dry, hot weather, lack of water, even for a single day, is liable to prove fatal, as has been pointed out by Mr. William Curtis in the *Botanical Magazine*. When the plants are making growth in spring, *water* may be given fairly plentifully, always taking great care that there is no stagnation about the roots. They will go wrong at once if this is allowed. As the growth ripens, the amount of water must be reduced: but, as I have already said, never let the plants get dust-dry. It is a very difficult thing to strike the happy medium.

Where watering is such an important point it can

SOUTH AFRICAN HEATHS.

readily be seen that *drainage* is also important, so be sure there is no block or obstruction in the way of the roots, and that all is clean and clear. *Ventilation*, again, is of the utmost moment. At *Kew* it is only in hard frost that the outside air is entirely shut off. The *temperature* should not fall below forty degrees, and there should always be a current of fresh air through the house, which must be kept very dry. These are the chief points in the successful cultivation of South African heaths; and if these rules could be followed in the open air, the specimens would be a very welcome addition to our gardens.

These heaths are to be seen in fine condition in Plant House No. 7, the *South African House*, at *Kew*. They were first introduced there in about 1774 by Mr. Masson, who collected and sent several forms home from South Africa. *Erica cerinthoides*, one of the most magnificent and showy of the genus, was introduced to the Royal Gardens about this time; it is usually propagated by cuttings. *E. retorta* generally flowers about August, and, as the name suggests, has all its leaves bent downwards. *E. Massoni*, introduced by Mr. Masson in 1789, grows to a considerable height. The 'blooms are so extremely viscous that scarcely a winged insect can settle on them and escape with its life.' So we read in the *Botanical Magazine* of that date. *E. Aitonia*, introduced about 1790, and named after Mr. Masson's great friend, varies a good deal, and comes from a rather moist situation. *E. grandiflora* is one of the handsomest, a good *yellow*, with curious filaments and anthers.

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VI.

WEEDS.

May 22nd.

WEEEDS are considered one of the greatest enemies of the gardener. When a garden is full of *weeds*, and said to be '*dirty*,' we feel it a severe term of reproach.

But what exactly do we mean by weeds? How is it that these thousands of unwished-for plants spring up in every direction? Their appearance in such numbers may be due to a variety of causes, but is most commonly the result of '*seed dispersal*,' a subject teeming with interest.

The various arrangements provided for this process are extremely beautiful. That the young unfertilised seed should be wakened into life is the whole business in the existence of most flowers. And as Nature has provided many means for accomplishing this end, by either *scent*, *colour*, *vivid markings* on the *petals*, by the assistance of the *wind* or *water*, so has she devised many methods by which the *fertilised seed* shall escape and become distributed; and it is owing to these methods that most '*wild flowers*' and weeds appear.

Three instances will serve as examples of these distributions, and help us to realise how important a part they play in nature. In *cyclamen*, after *fertilisation* has taken place, the stems bend over, and usually *coil up spirally*, and in time the ripening *fruit* is drawn into the ground. The *capsule* or seed-pod of the *poppy*



E. M. S. P. 1890

WEEDS.

1. Dandelion (London).
2. *Exacum macranthum* (Ceylon).
3. *Gloriosa superba* (Ceylon).
4. *Androsace obtusifolia* (Switzerland).
5. *Gentiana campestris* (Norfolk).

[To face page 17.]

WEEDS.

is familiar to most of us. It is round, and opens by pores 'under the eaves of the roof of the dry stigma,' the seeds are thus protected from rain, and are sown broadcast when the stems are moved by the swaying of a strong wind, or any other agency. In *geranium* the seed pod splits at the base from the central beak; the lower part contains the seed, and turns upwards, and thus it is enabled to escape.

Seeds are distributed by *animals* in many ways. *Birds* are attracted by the vivid colourings of the *fruits*. Certain seeds resemble *beetles* and *caterpillars*, and it is suggested that birds may be deceived by them, and so carry them to a distance.

In Britain we usually mean by the term 'weed,' *plantain*, *groundsel*, *thistle*, *dandelion*, and so on. Yet at *Hakgala*, the well-known garden in *Ceylon*, I found a *dandelion* being cherished and encouraged to grow with the greatest care, while plants we look on as our most precious possessions, such as *Exacum macranthum*, *Ipsa*, *Phajus*, and *Gloriosa superba*, were being abused, uprooted, and denounced as weeds.

The necessity for knowing the names, habits, and botanical characters of as many plants as possible is brought home to us when we find the word 'weed' is so elastic a term. To keep the garden clear of weeds, then, is one of our first duties. Many inventions are advertised for their destruction. 'Weed destroyers,' 'weed killers,' we see recommended in all directions. But it is important that only the best should be used.

The most effectual way of clearing away soft annuals is to keep the *hoe* constantly at work. This is never time wasted. Plants like dandelion, plantain,

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and so on, with *tap roots*, must be removed entirely. In weeding lawns it is well to loosen the soil rather deeply by forking. Then the entire root of the weed can be taken out unbroken, and, if desired, a little fresh grass seed or manure scattered on the surface before rolling.

VII.

A BORDER OF ANNUALS.

May 29th.

IN creating a border of *annuals* a great many points must first be determined, as different plants need different care. What is the *aspect*, the *soil*, the *background*, the *size*, the *form*? Is there an ample *water supply*? Is the position exposed or sheltered, in *Cornwall* or *Yorkshire*? To make a thoroughly intelligent and succesful colour scheme for planting all this must be ascertained; and it must be understood that only an outline of a planting can be given till the answer to all these questions has helped to determine the plants to be used.

Some annuals need to be sown in *September* and grown into good plants for the summer, some sown in spring in drills and moved to their flowering quarters, some sown in their place for flowering in *March*, and others sown in pots to replace failures. Many ways of grouping them in the borders for colour suggest themselves. Shall it be a *white* garden at one season of the year, or a *blue* garden, or a *pink* garden, arranging that flowers of these colours shall always be in bloom, or

A BORDER OF ANNUALS.

shall it be formed of groups of various colours, divided by fine masses of foliage plants, also annuals? Or, again, shall the whole stretch be one stream of colour, harmonising and graduating from dark to light, or the reverse? Shall part of the border be kept uniformly low, or shall breaks of tall plants be brought to the path and conceal what follows? In a short article it is impossible effectually to work out any of these schemes, and if I can give any idea of the different ways of treating annuals it is the most that can be done.

An 'annual' border is, to the uninitiated, a most simple affair. The seeds are just sown, come up, flower, and create a good effect, and all is over. As a matter of fact, the border needs much thinking out, planning, sowings at many times of the year, and a great deal of work to keep it in order through the summer.

Beginning at the lightest end of the walk (supposing the border to be bounded by a walk), let us imagine plants of darkish hue—*Gaillardias*, *Salpiglossis*, *Perilla*, and others of dark foliage, relieved by touches of orange; *Eccremocarpus*, scrambling over tall stakes, and carpeted with *Tropæolum* of bronze and lemon. These *Tropæolum* should be sown in drills in early spring, not too close together, and each variety distinctly labelled, so that in lifting a plant its exact shade is known. Running among this, and along the front of the border, we will now have the palest dwarf *Tropæolum*, then *Eschscholtzias* and *Hunnemannia* in groups and heights, of all tones of yellow, and running in and out of it a carpeting of *Linaria*, *Mignonette*,

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and Cupid *sweet peas*, thus shading into tones of *cream*, and from that to *pink* in endless variety and beauty. Sweet peas, tall growing and well staked, with natural branches, *Clarkia*, *Shirley poppies*, annual *Larkspur*, *Convolvulus*, and *Godetia*, the whole carpeted with *Dianthus Heddewigii* in groups of separate colours—*salmon pink*, *deep red*, and *white*. And now we want to get into white in good masses: *stocks*, *asters* (annual), *Nicotiana affinis*, *sweet peas*, a host of others, all lovely, but taking too long to write about; this grounded with foliage, such as *Coleus*, which can be treated as an annual if grown from seed. It germinates quickly. *Zea* in groups planted with all these gives a very handsome effect.

Now the scheme of colour must glide into the palest mauves—stocks again, sweet peas, *Schizanthus*, *Ipomœa*, *Statice*, *Maurandia Barclayana*, *Linaria*, *Verbena*, till we imagine we have reached the end of our border and the most shady part, and so we place here all we can in blue: *Anchusa italica*, *Nemophila*, *Cornflowers*, *Phacelia campanulata*, *Nigella hispanica*.

Thus we have a broad scheme for colour-planting in groups, as already stated. But there are many points in the cultivation of annuals that will either make or mar the success of any grouping, however excellent.

The hardy varieties require sowing in Spring between *March* and *April* (but in some cases the autumn is best), and some need sowing in their permanent quarters now. Cultivate the surface of the soil thoroughly always before sowing; much success depends on this. Sow very thinly; the importance of this can

A BORDER OF ANNUALS.

hardly be over-estimated. Always use finely-sifted soil to cover the seed. If the seeds are very small, be more careful of this. There is a saying, 'No man can hoe his own turnips,' and I think no man (or woman) will sufficiently thin out the seedlings. From six to eight inches is the right space to leave, otherwise the plants will be drawn and poor. Keep the seed-pods cut off at all times (unless any particular form is for next season's use). Give them well-prepared soil.

Watering is a great medium of success. They should be watched, and, even if the soil is moist, a spray overhead at evening-time helps the plants. Always keep a reserve *nursery*, that when plants go over or 'off' others may instantly be substituted. Some kinds are better sown in pots, and kept growing for this purpose. These are plants that resent interference at the roots. Others should be kept growing in nursery beds and lines, ready to come on. They are the result of successional sowings. The night before moving, trench the plant round with a spade, and fill the trench with water. Move them the next evening, again giving a liberal supply of water, and they will not feel the change. Keep the roots well covered from contact with the air. Always have a big bass or list mat to put round them, for exposure is harmful to them. Lately I moved a shrub in full bud in this way, with first-rate results.

Creepers allowed to ramble over high bare branches give a charming break to a border. In addition to those mentioned, the Japanese hop, *Humulus japonicus*, is a quick grower and of good colour. *Tropæolum canarienses* is useful. *Thunbergia alata* and the charm-

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ing *Cobæa scandens* in white or mauve make good effects. Nothing has been said about the annual grasses that may with the greatest advantage be used: *Sorghum halepense*, *Agrostis pulchella* (mix this seed with a little fine sand to distribute more evenly), *Briza maxima*, and others. *Portulaca* make a fine blaze for grounding in full sun.

VIII.

A GARDEN OF PRIMULAS.

June 12th.

ANOTHER Primula has been added to the long list already in cultivation, and *P. cognata* seems likely to be a favourite and do well in our climate.

Every day this genus of plants is becoming better known and more appreciated, and rightly so; for it is truly delightful, pleasant to see, pleasant to smell, and usually pleasant to touch. The species vary considerably in height, size, colour, and texture. Some have smooth stems and smooth leaves, while others are covered with glandular hairs which excrete a resinous substance. It is this which causes the delightful perfume of *P. sinensis* (China), while in *P. obconica* (China) (the species most undesirable to handle) the secretions sometimes cause irritation and discomfort to the skin. Primulas are interesting botanically, as they are what is termed 'heterostyled.' In looking at a primrose (*P. vulgaris*) it will be noticed that the mouth of the tube is filled either by the stigma or by the anthers. Where the stigma is visible we know that



SPECIES PRIMULA.

1. *Primula involucrata*.
2. „ *marginata*.
3. „ *rosea*.
4. „ *Clusiana*.

5. *Primula nivalis*.
6. „ *calycina*.
7. „ *viscosa*.
8. „ *Cockburniana*.

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the anthers are attached some distance down the tube ; and where we see the anthers in the mouth of the tube we know that the style is short. Of these two forms the pollen grains are of different sizes, those of the short-styled flower being the larger. Another remarkable fact is that the best yield of seed is obtained when pollen is brought from a short-styled to a long-styled flower, or *vice versâ*, the crossing of short-styled with short-styled, or long-styled with long-styled, giving poorer results.

At present we have about a hundred and fifty species of primulas, and they are widely distributed. In *Britain*, five species occur, including *P. farinosa* ; a *white* form of this last was found in the neighbourhood of *Ingleborough* in *Yorkshire* last spring. *Switzerland*, *Italy*, *Siberia*, *Turkestan*, *Asia Minor*, the *Himalayas*, *China*, *Japan*, *New Mexico*, and *North America* all contribute to make up a collection of delightful plants, and we may reasonably hope that more forms will be introduced from the vast area in Northern China, as yet untrodden by the plant-collector.

Primulas require very different methods of cultivation. Many of the Alpine species are not easy to manage in our English gardens. The damp of autumn and winter seems detrimental to them, and care must be taken that what is called 'the crown' is kept dry. The crown is the part of the plant just above the soil, which is thick with stems and leaves. While the plants are growing they should be cool and moist, but during the early winter gritty fresh soil and a few stones worked into the surface of the ground will help them. Certain of the Himalayan

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species are much more easily grown, and in a rather shady moist position very beautiful. *P. denticulata* and its varieties, *capitata* and *cashmiriana*, grow to some height, and form fine heads of blue covered with white powder. *P. japonica*, the primrose of Japan, may be seen to-day at the *Royal Gardens, Kew*, in good condition. This is one of the handsomest of the genus. It may be twenty inches high, in all tones of red, cream, biscuit colour, and white. It was introduced in 1871. In this country the plant seems to thrive in moisture. In Japan it is to be seen in all positions, and always just in the right place from an artistic point of view; and it is not easy to say if the plants are chance seedlings, or if they have been planted with care. Seed germinates readily, if sown directly it ripens. Though this plant claims to be a moisture-loving species, I have seen it blooming well between the bricks at the foot of a garden wall in *Cornwall*.

P. rosea is a native of *Kashmir*, and should be planted in sunshine and moisture. After flowering, the plants must be divided and replanted. One of the most striking primulas is *Cockburniana*, another treasure, about twelve inches high, of clear, deep orange colour, with a deeper orange eye; it is a plant of considerable beauty, a native of North China. In *P. deflexa* the flower stalk is about eighteen or twenty inches high, and the name describes the position of the flowers as they grow on the stem. Both these can be seen now in blossom in a damp position in the rock garden at *Kew*. *P. palinuri*, from Italy, is a grand plant, easily propagated by division. *P. nivalis*, from the Caucasus, is charming, and, as its name denotes, the flower

A GARDEN OF PRIMULAS.

is snow white. There is some uncertainty as to the origin of this plant, for as some one said 'there isn't such a thing.' Anyhow, the *P. nivalis* of gardens is so charming and soft and sweet that it is worth a good place in any collection.

P. involuerata (or *Munroi*) fills one with delight. It is cool-looking, dignified, and dainty; apparently easily grown; some six or eight inches high, of a lovely white, and with a curiously pronounced involucre (a ring of bracts surrounding several flowers); it is a beautiful and interesting plant.

A primula garden is a very lovely addition to one's possessions, and may be enjoyed by those with small space and small means at their disposal, as well as by the more blessed. Primulas brought together, and planted on each side of a stream winding between its banks, form a very beautiful, dainty bit of work, and each species can be given exactly the soil to suit it.

P. japonica and *P. rosea* should be near the water. *P. auricula* grows best high up on the banks when placed in cracks between stones, and *P. Clusiana*, which comes from the Tyrol, may also be placed between stones on a good northern slope. *P. marginata*, one of the daintest and most charming of the species, should always be in a dry position. The stem of this plant has a habit of growing long and unsightly. When this is the case, division and replanting are desirable.

It would, of course, be possible to extend this list very considerably, but enough has been said to show how very varied and interesting a genus of plant it is. Exhaustive lists of primula can be found in catalogues, particularly among *Alpine* plants, and it will be found

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the best and easiest plan to begin by getting the nucleus of the collection together from seeds. When you have looked through the numberless catalogues describing the genus, and decided what you will grow, buy your seeds, and sow them very thinly. If crowded together the little roots suffer greatly when they are disentangled and 'pricked out.' They are mostly quite easy and good things to grow from seeds. Keep the young plants moist and in shade till ready to put out, and I would advise a reserve batch being kept in pots to take the places of any that may (and certainly will) 'damp off.' I can most confidently recommend the primula garden as an endless source of pleasure and intelligent interest.

IX.

FLAGS OR TYPES.

June 20th.

'DO you care to have a collection of *iris*?' The question was asked by an anxious gardener wishing to create a sound, satisfactory piece of work? The answer—'A *flag* corner? Oh, yes! charming'—taught him that there were two ways of treating this *genus*, either by collecting the '*types*' or '*species*'—knowing their names, habitat, individualities, and other details of their history—or by planting the form spoken of as '*flag*' in groups merely for effect.

For the present I shall only consider this last aspect of the cultivation of irises, for just now they are in full flower, and replanting should be done next month. If we possess many of them we should look

FLAGS OR TYPES.

carefully, and make sure that no colours clash. Supposing they can be better arranged, label them now very distinctly. Write the colour, or, better still, the name, on the edge of a piece of paper about two inches square. Fold this tightly, and so that the name is well inside, and then tie it securely to the flower stem. When moving, take up the plant, untie the paper, and, noting the colour, replant the specimen in the desired position. When the roots appear bare and knotted on the surface of the soil, it is a sign that division and replanting are needed.

The section known as 'flag' is by seriously-minded spoken of as '*Pogoniris*,' from the Greek *πώγων*, a beard. This beard is seen conspicuously on the outer segments (or larger petals) of the flower. By some it is mistaken for pollen. Its real use is to indicate to insects the way to the honey glands, and, in reaching these, cross-pollination is effected by a beautiful mechanism. A certain amount of classification is determined by the colour of this beard, therefore it is important. The root of *Pogoniris* is always a *rhizome*. This section of iris has many divisions. '*Iris pumila*' from *Asia Minor* flowers in *April*, its stem being about nine inches high. Among the classes now in bloom is *I. germanica*, the commonest of all, with bright yellow beard, and, as may be said without exception of the whole family, it is of beautiful form. It is purple. '*Purple King*' and '*Black Prince*' are particularly handsome.

I. florentina (Central and Southern Europe) is a great favourite and a good free bloomer. The *rhizome* or root of this species is stout; it forms the *orris* root

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of druggists. The colour is very pale, almost *white*, the beard bright *yellow*. The variety *albicans* (*Cyprus*) is pure *white*, and very lovely; the garden form named '*Princess of Wales*' is also *white*. *I. squalens* is interesting and handsome, beard bright yellow. The upstanding petals (standards) are clouded yellow or dull *lilac*. '*La Prestigieuse*,' '*Jacquinianna*,' '*Sir W. Scott*' are satisfactory forms.

Iris neglecta has many charming varieties. The beard is yellow; the standards are always bright light lilac. '*Clarissima*,' '*Willie Barr*,' and many others, are delightful. '*Mrs. G. Darwin*' and '*Alba innocenza*,' are both glorious white flowers. The '*Variegata*' group takes one into shades of yellow and *bronze*. *Aphylla* is also charming, but I think the most beautiful gem is *I. pallida* in all its forms. A native of *South Europe* and *West Asia*, it is found also seven thousand feet up the *Atlas Mountains*. The type is fragrant and of lovely blue lilac. The grandest of the class is *I. pallida dalmatica*, three feet high, of exquisite, almost iridescent colouring, with grand, very glaucous foliage of one and a half to two feet high. This beautiful plant should be in every garden, grown in big clumps, which will rapidly increase, and always be handsome. '*Queen of May*' is another fine species of this class, almost *pink* in colour.

These, then, are some of the plants that would be used in creating a 'flag corner.' They are hardy, they need plenty of sun, and do not resent lack of moisture. When necessary, they should be moved after the flowering season. In a collection of iris, plants of many heights, forms, and colours are grown.

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They may be in shade or moisture or on a sun-baked bank, and they flower in *November* or *August*, or any of the intervening months. The root may be a bulb or a rhizome. The texture may be smooth and leathery, fragile or hairy (on the fall). The plant may be six feet high or two inches; the stem may be fistulous or not. The colour varies from pure dead-white to brown, dark red purple, with many shades of yellow and pale mauve. Some species are fragrant; some have no scent. Many are capricious, not easily induced to flower, which makes them all the more fascinating to cultivate.

Just now the handsome tallest form known, *I. orientalis*, var. *gigantea*, popularly known as *I. ochroleuca*, is in flower. It is a native of *Asia Minor* and *Syria*. The flowers are white and rather leathery in texture. It is hardy, and should be cultivated by all. *I. aurea*, from the *Western Himalayas*, is of the same kind, and is also in flower at this season. As its name denotes, it is golden in colour. *I. tectorum*, introduced from *Japan* in 1872, is handsome. In its native country it is often seen growing on the sky-line of thatched roofs. There are two species in Britain: *Iris pseudacorus*, 'yellow flag,' growing in ditches and rivers; and *I. foetidissima*, with bright orange fruits.

A 'flag corner' is certainly a feast for the eye. But a 'collection of iris,' of which I shall, I hope, write in *August*, is a feast for the intelligence, and a severe test of horticultural skill.

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X.

CARCLEW.

June 26th.

SO much is already known about this superb estate that it needs no introduction from me. An idea prevails that the interest in Cornish gardens ceases to a great extent when the *rhododendron* season is over; but a description of some few of the shrubs and plants now in bloom at Carclew will, I think, dispel the notion.

We approach what is known as the 'Pond Garden' by a winding path, on each side of which are fine bushes of *Azalea mollis* and *Azalea indica*. This 'pond garden' is a rectangle of some seventy-five by ten yards. At the eastern corner, planted exactly in the right position, is a unique specimen of *Quercus lucombeana* (known as Lucombe oak), with a grand straight trunk of about a hundred feet high, in girth thirteen feet about three feet from the ground, in magnificent health and vigour; this tree alone is worth a journey to see. Across the path, looking to your left, is a fine bank of *Lomaria magellanica*, and springing from the midst of it is a *Dicksonia antarctica*, with which we are quite satisfied, till a turn in the path brings us to a simply superb plant of the same species. The stem, four feet high and a foot in diameter, bears a number of magnificently matured fronds about nine feet in length. The fronds of this season's growth, some twenty in number, stand boldly out of the centre



CARCLEW (a Cornish Garden).

Pawlonia
imperialis.

Embothrium
coccineum.

Rhododendron
Falconeri.

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of the stem seven or eight feet in height, with their tips curling inward, giving an effect of great dignity. (It is suggested that the coiling young growth of certain plants is due to the fact that the cells of the stem nearest the light expand more readily than those on the other side. This kind of growth is termed *circinnate*.) The south side of this garden is planted with *camellias* and backed with Scotch firs. Some way down is a good *Paulownia imperialis* (*Japan*), and then comes an *Embothrium coccineum* (*Chili*) of remarkable size and beauty, a sheet of scarlet blossom. It is not possible to describe in detail all the specimens grown in this part of the garden; but I noticed an unusually good *Azara microphylla* (*Chili*), about forty feet in height; a *Choisya ternata* (*Mexico*), a bush seven yards through; and a *Eugenia apiculata*, about thirty feet high, with lovely cinnamon-coloured, well-shaped stems. A fine Ghent azalea, in shades of orange and yellow, was grounded with musk in full flower and self-sown. *Gaultheria Shallon* (Western North America) is in good health and bloom. This seems to be a useful plant, as it is doing excellently under other trees and in shade. There is also a specimen, I should think unequalled, of *Ginkgo biloba* (*China*), the maiden-hair tree; and a magnificent bush of *Deutzia gracilis* (*Japan*), six feet high, one mass of white flowers. But the pride, or rather, one pride of Carclew is most justly its collection of Sikkim and Himalayan Rhododendrons growing here. It is small use to try and describe the individual trees, and their quantity and quality of bloom and grand foliage. Luckily for plant lovers the owner of Carclew is pleased that they should enjoy his

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possessions, and a trip to Cornwall to see these gardens would be well worth the time and trouble. Somehow the whole place fills one with a sense of its dignity and superiority. There is no crushing and hurrying and crowding in of plants to create an effect. One feels that generations of cultured owners and gardeners can alone have produced that appearance of confidence in its own powers of dignity and beauty.

For the newcomer, feverishly anxious that his should hold a place amongst Cornish gardens, and who buys plants, and hurries them in to produce an effect, Carelew is a lesson in restraint and patience. At least, this is how it always appeals to me. Almost must one 'take one's shoes from off one's feet,' and pause, for, in the presence of so much skill and beauty, modern hurrying methods seem unworthy and out of place.

From this garden a flight of stone steps lead to the first two of formal gardens, with low stone walls round them. The borders now are a mass of colour. All sorts of herbaceous flowers are there in profusion, among others a particularly pretty gladiolus, unknown to me, but treated as an old friend merely, no detail of its history being known. On a north wall *Vitis striata* is in good condition, and climbing with it is *Tropæolum speciosum*, big trails of its gorgeously coloured flowers appearing here and there; *Myosotidium nobile*, the giant forget-me-not of the Chatham Islands, had also been in bloom. *Crinum* is in the borders, and promises well, and a good clump of *Pancratium illyricum* had evidently been in full beauty. *Delphinium*, *Matthiola*, *Hedychium*, *Francoa*—all of the gayest and brightest,

CARCLEW.

are here; and overhanging the wall leading to the second formal garden—the rose garden—are three grand patches of *Lithospermum prostratum*. The rose garden is well planned and planted, and some blooms on the bushes prove that fine roses may be grown in Cornwall.

Now we pass to see a collection of flowering plants and shrubs on a south wall, and how can we express their charm? *Clanthus albus* and *C. puniceus* (*New Zealand*) both are there; *Pleroma macranthum* (*Brazil*), *Trachelospermum jasminoides* (*China*), *Chorizema* (*Australia*), *Succisa*, *Manettia luteo-rubra* (*S. America*), and many others, all either in promise of, or full of flower. Another wall with a northern aspect is covered with *Lapageria* (*Chili*), both *rosea* and *alba*.

The gardens at Carclew are very complete. There are walled vegetable gardens well stocked with fruit trees, and plentifully cropped; vineries, peach and orchid houses, greenhouse, and propagating pits. I noticed a grand lot of annuals 'pricked out' into a frame ready to replant into their flowering quarters. The spring bedding of last season was neatly laid in trenches, each kind by itself, and in the autumn will only need division and replanting.

The work on hand was thinning onions and other crops, staking peas and beans, potting chrysanthemums and begonias for winter decoration, thinning grapes, and mowing and tidying generally.

Outside the gardens is another stretch of water known as the 'Wheel Pond.' The margins are planted with grand *Embothrium* in scarlet flower, *Acacia verticillata*, *Gunnera* of gigantic growth, *Libertia*

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in an enormous clump (evidently a moist position suits this plant). On the surface of the water more *Nymphæa* are growing, and at the edge of it a grand fringe of *Arums*. The way these had been planted interested me. A wire netting had been securely fastened, the whole length of the pond, some six feet from the shore touching the bottom of the pond. To it, on the side nearest the bank, was attached sacking, to prevent the soil percolating through the meshes. In this trench a hundred cartloads of good soil had been placed, and the *Arums* planted in it. They had done well, and a grand display of flower was the result.

This brief outline of some of the charms of Carclew will, I hope, correct the idea that a Cornish garden is not desirable in the summer.

XI.

PLANTS IN PROFILE.

July 5th.

PLANTS for our pleasure-gardens are interesting in many ways, but notably for their *colour*, their *perfume*, or their *form*. This last is one of the most useful and attractive of their properties. It is possible to combine the three qualities, as in the case of *Wistaria*, *Nicotiana*, *Lathyrus odoratus*, and hosts of others. It is possible to have perfume the principal attraction, as in *heliotrope*, *Mimulus moschatus*, and *Reseda odorata*; or to have the effect of colour only (as in *Canna*) to recommend the species. But of the

PLANTS IN PROFILE.

three, I think the beauty of form is the most subtle and the most lasting.

On a wall or *pergola*, in groups on a lawn, on a rockery or in a border, the profile of plants should be very carefully considered. For instance, the forms of leaves vary considerably. They may be simple or compound, according as the stalk bears one or several leaflets. The shape of the leaf may be pointed (acute) or blunt (obtuse). It may be notched (emarginate), broadly notched (retuse), with a large stiff point on a nearly straight edge (mucronate), or any of several other shapes. The surface may be without hairs (glabrous), or when hairs occur they may be of various qualities. The leaf may be dotted in oil-glands, or variegated in colour; the substance may be thin or leathery (coriaceous), or one of many other textures. Further, they may be evergreen or deciduous.

Considering, then, merely these differences in the conditions of leaves, irrespective of the growth of stems, which adds vastly to the effect in borders and so on, we easily can see that a good result can be produced by studying and knowing the individual merit of each specimen.

Our ditches and hedges give us the key to successful grouping. Take, for instance, the common nettle, *Urtica dioica*, growing on the edge of a wall, or in a hedge, with its exquisitely delicate profile of leaf and stem seen against the sky, building, or bank. At the base we find, perhaps, *Petasites fragrans* (Winter Heliotrope), with its large, round, stout leaves, accentuating the graceful growth of the nettle. Among this, again,

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the *Rumex* (or *docks*) may appear, which have another shape and texture of leaf entirely ; and *Convolvulus* in profusion may be there, or *Verbascum*. Here we have five distinct leaf forms, each contrasting with and assisting the beauty of the other. If we are on the watch for effects of this kind they will more and more reveal themselves, and develop our sense of the values of form.

A good group of *Iris orientalis* var. *gigantea* at the edge of a border, or at a turn in a border, planted with *Acanthus spinosus*, are both excellent for profile effect. It is said that acanthus furnished the pattern for the decoration of the capitals of Corinthian columns. *Veratrum*, *Aloe*, *Agave*, *Gypsophila*, *Heuchera*, *Hemerocallis*, *Eremurus*, *Asparagus*, *Bocconia cordata*, *Tamarix*, *Lilium*, *Rubus*, and several *polygonums* are a few of the species that in planting we should especially consider as being good plants in profile. A group of *Crambe orientalis*, *Ferula Sumbul*, or *Heracleum Lehmannianum* against a *laburnum* and an ash, or countless other effects may be mentioned, but it is more helpful to suggest many than to define a few groupings of plants.

Some genera are particularly delightful and subtle to manage ; not only does the background best suited to them need careful consideration, but they make a glorious background for other plants. This applies to all the *bamboo* tribe. They are particularly dependent on background, and they in effect assist in an extraordinary way certain forms of growth and profile when mixed with them, particularly, I think, those of the division of plants to which they belong, namely 'monocotyledons.' These have many characteristics :

PLANTS IN PROFILE.

among others the veins in the leaves are almost always parallel, the parts of the flowers are in threes or multiples of three, such as *Iris*, *Gladiolus*, *Narcissus*, *Lilium*, *Smilax*, *Asparagus*, *Ruscus*, *Canna*, orchids, and others. I once wished extremely to create a garden composed entirely of this division (*i.e.*, *monocotyledons*). I explained as above, as well as in me lay, wishing to be allowed to arrange something of the sort. However, to my nervous question, 'Should you like it?' the answer, 'Oh, very much. Do they grow in England?'—well, startled me slightly. Since writing this I had my wish realised, and I began planting a garden, or rather an old stone quarry and an interesting undulating piece of ground entirely with *Monocotyledons*—all those mentioned and several others. It proved a most attractive part of the garden.

The profile of flowers is quite as important as that of foliage, and I wished to emphasise this when I said the effect of cannas is for colour alone. Who could describe the amount of petals, for instance, in a canna? It appears merely an undefined blotch—of very glorious colour often, it is true, but quite without grace of form. The same thing applies to carnations treated as we see them, tied to stakes, merely a long straight stem with a ball of colour on the top. A bed of carnations properly staked is a painful sight. The poor flowers do look so unhappy, and wish to scramble about and soil and deface their beauty.

Begonias are unsatisfactory—heavy-headed and unexplained in form. But the reverse of all this is seen in hundreds of flowers. Tulips, for instance, *Tulipa retroflexa*, *T. fulgens*, *T. Gesneriana*—can they be

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beaten?—lilies, *Hyacinthus candicans*, and many of the saxifrages.

But of all plants for profile that I know, I think the *Nelumbium speciosum* (*Japan*) is one of the most beautiful. Every part of it is exquisite, the tall stem, the beautifully waved and balanced leaves of glaucous, waxy texture; then the form and colour of the flowers is perfect, and when all the petals have dropped, and the 'seed-pod' is left on the stalk, it still is extremely handsome and graceful.

Important as are the questions of combining colour and form, undoubtedly the first consideration must always be the welfare of the plant. That this should be in a position most likely to promote its well-being is the one point to which every other consideration must give way. For with plants, as with human beings, the greatest beauty of all is the beauty of perfect health.

XII.

A DAY'S WORK.

July 10th.

DURING the first week in *July* I visited a well-organized, thoroughly first-class garden, and I think that the work which I saw going on may prove of practical interest to the readers of these gardening articles.

The houses were all being rearranged and cleaned. They looked smart and bright. Shabby plants had been removed, and fresh ones brought in their places.

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This work is done twice a week, or oftener if needed. For decoration *Humea elegans* is a useful plant, easily raised from seed, nicely scented, and graceful in form. In the orchid-house the usual shading and watering were going on. Several flowering plants of *Phalænopsis rimestadiana* had been brought from a temperature of sixty degrees to about sixty-five or seventy degrees. The *Calanthes*, *Anguloa*, and *Lycastes* were getting nourishment, and one ingredient of the dose, they told me, was 'sut.' I did not like to cross-question, but 'soot' was what they meant! Among the palms, at a temperature of seventy-three degrees, spraying was in progress. 'Mealy bug' had appeared, and was being checked by a concoction of half a pint of fir-tree oil to five quarts of water and the use of the '*Erinette*' sprayer, an excellent little hand-machine of very useful size. Dead leaves were being cut out, and the place generally freshened.

A good deal of interesting work was going on behind the scenes and among the propagating pits. In one house, *Begonias* to flower in the show-houses in *August* were being rearranged, given more air and space round them, and now they will be 'grown on' till needed for decoration. In another, cuttings of *Coleus thyrsoides* (taken the beginning of *June*) were getting their first move into single pots. These were placed on a bench, covered with a hand light, and very judiciously watered for the present. This is a useful decorative plant of easy cultivation.

Seedling *Eucalyptus* were being potted on. I find them rather shy things to handle while establishing. When 'pricking' them out from the seedling pans into

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their first pots, I keep a tub with water about three inches deep in it by my side. Immediately the operation of potting is over I stand the plant in this till enough water has been absorbed to thoroughly moisten the soil. After that I keep them close and shaded, and thus lose very few.

Cyclamen, for winter flowering, were being put into five-inch pots; also *Primula obconica*, sown in March. *Dracæna* cuttings, taken from what is known as the 'toe' (a slightly swollen part of the root) of the plant, and cuttings struck from portions of the root about two inches long, put in cocoa fibre and silver sand in a temperature of sixty-five to seventy degrees, had rooted, and were being potted up. Cuttings of *Fuchsia* and *Browallia speciosa* were going into five-inch pots, and cuttings of *Begonia* ('*Gloire de Lorraine*') were being struck. Succulents such as *Aloe*, *Agave*, *Gasterias*, *Mammillaria*, &c., had been taken out of heat and put in a cold frame. All 'hard-wooded' plants—that is *Metrosideros*, *Acacia*, *Azalea*, &c.—were cleared out of heat for the summer months, and plunged in a bed of ashes about two feet deep, and the pots sunk in them to about half their depth. In hot, dry weather these should be watered twice daily. They remain out till the last week in *September*, and take a new lease of life when going in. If they were kept under glass all the summer months they would scald. *Chrysanthemums* were getting a good soaking daily; no feeding begins till the middle of *July*. The plants are in their flowering ten-inch pots.

The *Rock Garden* looked wonderfully bright, and work was busily proceeding here. Cutting back all

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the species just out of flower was in progress, such as *Alyssum*, *Aubrietia*, *Veronica*, *Thymus*, *Cerastium*, *Æthionema*. This work is very necessary if the Rock Garden is to be a success; if omitted the plants become straggling and out of shape. Seeds were being collected here from plants already fruiting, for instance *Campanula thyrsoidea*, *Geum*, *Cheiranthus*, *Saxifraga*, and others.

In a frame with no lights on were some flowering shrubs, notably a grand specimen of *Olearia insignis*. This is a remarkably handsome plant. It belongs to the N. O. Compositæ. The ray florets are white, and the disc is a beautiful golden yellow. The calyx is extremely handsome, the stem thick with a woolly white surface. The leaves are entire, and very thick, lined with a white felt substance, with which they are margined on the upper surface.

Several of the staff were at work among the *Tulips*. These were being carefully lifted and partially cleaned, each species placed with its label in a pot separately, and carried off to a loft where there is plenty of air, to remain there till about *September* or *October*, when they will be carefully cleaned, classed, and replanted as desired. When the tulips are finished, the *Narcissi* will be treated in the same way.

In these gardens I saw one of the loveliest of plants. It was labelled *Ipomea rubro-cærulea*, and came from *Palermo*. It is quite lovely, the flowers of an exquisite shade of blue, and about four inches in diameter. Near to it is a *Gerbera Jamesoni* (sometimes spoken of as '*Barborton Daisy*'), with fifteen blooms open at one time.

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In the vegetable garden I found general cleaning going on and thinning of crops. Preparations were being made for getting out material for winter use, such as *Celery*, *Savoy*, *Broccoli*, and other things. The *Asparagus* had evidently been good, and most wisely had not been cut too hard. The stems left have been well staked, otherwise they get broken by the wind, the flow of sap interrupted, and the result is non-nourishment of the root of the plant. In March the bed had a dressing of *basic slag*, as had also the *Sea-kale*. *Peas* are in grand condition here. A French form, *Pois de Châtenay*, I thought unusually tender and sweet.

Melons and *Cucumbers* were good. To the former give very little air, particularly at night, and place the fruit on a bit of flag to keep it off the damp. Shade them during a sunny day.

XIII.

GLASNEVIN.

July 17th.

GLASNEVIN—where is it? This usually is said if you speak of the second best *Botanic Gardens* in our *British Isles*. We all know the Royal Gardens at *Kew* (or rather, we know these gardens exist), yet very few have heard of their sister across the *Irish Channel*.

The Royal Botanic Gardens, *Glasnevin*, lie some two miles out on the north side of the city of *Dublin*. They are in extent about fifty-two acres. In placing them second I refer only to size, expenditure, and

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staff. As far as a collection of specimens, their cultivation, and general organization are concerned, they take no second place, but are serious rivals to other Botanic Gardens all over the world. There are two principal ranges of glass at Glasnevin composed of houses with various temperatures and atmospheres, and it is very difficult to decide whether the *Water House*, the *Palm House*, the *Succulent House*, or the *Orchid House* shall rank first. As a collection of species, possibly the orchids or succulents would take the highest marks; but the unusual beauty of the plants in the Water House, and the superb cultivation in the Palm House, leave one quite undecided as to which is most to be commended.

The first range of houses is on the left, a short distance from the entrance. Here we find a valuable collection of tree-ferns, principally from *Australia* and *New Zealand*. Several species of *Cyathea*—*Alsophila*, *Dicksonia*—are well represented and in good health.

Leading from this Fern House to the Water House, on either side of the passage, is a shaded and closely-shut case containing *Todea* (*New Zealand*) and *Trichomanes radicans*, the *Killarney* fern, now so scarce in *Kerry*. These are ferns of curious texture, being often spoken of as the '*Filmy Ferns*.'

Now we get our first glance at the plants in the Water House, a dazzling delight of form and colour. Somehow one can never believe all the glow of the combination of colours in this house is quite real. It is so merry—so gay and beautiful. In no part is there a wrong note of colour or form, and each plant one sees is a fine example of its species.

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In the centre of this house is a circular tank some forty feet in diameter, and the principal plant in it (though many beautiful things grow round the margins) is the *Victoria regia* (natural order *Nymphæaceæ*), as happy as it could be in its native *River Amazon*, with six large leaves, their margins well 'trayed' or turned up a uniform height (some four to six inches) all round, showing their substantial and dangerously - spined under-surface. There are various reasons suggested for this 'traying'; among others, it may be to prevent one leaf floating to the top of the other, which it would inevitably tear to pieces, or to prevent rubbish and weeds settling on the surface and so annihilating the leaf. Firm traying of the margin is a sign of vigour in the plant. The flowers are full and *white*, though changing quickly to an ugly shade of *pink*. Considerable interest attaches to this plant. It is the sixth or seventh generation in succession, the seed each year being saved and *germinating* freely. The 'seed-pod' has a muslin bag tied over it and a brick fastened to its stem. Thus the seeds are kept at the bottom of the pond at a temperature of seventy to seventy-five degrees. When the water is drained off in the autumn, these seeds are harvested, and kept in a glass bottle of water, the minimum night temperature of which is about sixty-five degrees. The seed is sown in pots in a tank at a temperature of eighty degrees in *January*. The plant is put out at the end of *March* or *April*, and kept in a temperature of eighty degrees until a young leaf is made. The temperature is then reduced to about seventy-five degrees, and the plant is kept nearly at that all the season. This detail is given, as it is so difficult to

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imagine that the marvellous growth one sees is obtained in a few months. The plant is naturally perennial, but in our climate it cannot be kept through the winter.

In this tank also are *Nymphæas*, some of the tuberous-rooted forms—*stellata*—the exquisite delicate blue, the night-flowering varieties, the delicate pink *devoniensis*, and *Mrs. Wood*.

Now comes a good specimen of *Thalia dealbata*, a very interesting plant; and next *Papyrus antiquorum* (*Egyptian paper-reed*). These two give a fine effect of outline. Surrounding this tank is a stone wall, and standing on it *Caladium*, *Canna*, and other plants in all shades of salmon, claret-red, and pink—one glowing harmony. The corners of this house are filled with triangular tanks containing truly interesting water plants. The *Water Hyacinth*, of exquisite colour and form, is here (like the *Primula*, it is said to be ‘hetero-styled’), and countless other aquatics, each as interesting as can be, when the various apparatus which cause the leaves or stems to float are diagnosed.

Nelumbium speciosum is to be seen in two of these tanks in fine condition. On one shelf in the house is a collection of *Sarracenia* (the insectivorous plant). The pillars and walls are delightfully creepered with valuable climbing plants.

Now follows the ‘*Succulent House*,’ and here the atmosphere is dry and hot, and many species unusual in collections are to be seen. *Cereus giganteus* is here, and also *Pereskia* and the *Leucadendron argenteum* (or *Silver Tree*) from *South Africa*; in fact, there is a mighty collection of well-grown varieties. All is in order, cared for, and clean.

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The contents of these houses are so fine that I have gone perhaps rather fully into a description of them, and will conclude my notes of Glasnevin in the next article.

XIV.

MORE ABOUT GLASNEVIN.

July 24th.

LEADING from the *Succulent House* at Glasnevin is another fine group of houses. These are of different temperatures. The centre of the first (some seventy feet long) is filled with flowering shrubs, such as *Himalayan Rhododendron*, *Acacias*, &c., too tender to be grown outside except in the south-west of Ireland or England. A quite unique specimen is here of *Philesia buxifolia*, a native of Chili, N. O. *Liliaceæ*. This plant is well grown and of unusual size, and covered with red, wax-like flowers resembling a *Lapageria*. Opposite the entrance are two good plants of *Astelia Banksii* (also *Liliaceæ*), to the casual observer strikingly unlike the *Philesia*, having long, slender leaves lined apparently with a beautiful silver sheen.

Along the sides of this house are benches with all the gaily-coloured flowers of the season in profusion. The health and cleanliness of the plants are particularly striking. A tub containing a good clump of *Hæmanthus Katherineæ* is beautiful, and near it are *Rondeletia gratissima*, *Magnolia fuscata*, and other shrubs of this sort.

The '*Hard-wooded House*' comes next. Good specimens of shrubs are here, keenly interesting to a

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gardener working in the south-west of *Ireland* or *England*, for many of the species might, I feel sure, with safety be introduced into the open border. A passage filled with such plants as *Solandra grandiflora*, *Stigmaphyllon*, and *Tillandsia* leads on the *Tropical House* or *Stove*. One spring morning when the sun was pouring on to the plants here I thought we really must be in *Ceylon*, the effect was so dazzling and gay, the plants so luxuriant—one of *Brownea* growing almost as happily as in the gardens at *Peradeniya*, the Royal Botanic Gardens of Ceylon. Here is *Hibiscus rosa*, *H. sinensis*, var. *grandiflorus*, of unusual size, in flower without intermission for fourteen years. So much is here that it is impossible to individualise, but, as may be imagined, these houses are worth a visit.

The second range of houses consists of *Orchids*, *Palms*, and what is known as the *Camellia House*. No matter what the temperature or atmosphere outside or the time of the year, you may be sure a good group of *Orchids* in prime flower will greet you directly you open the door of their house. It would be foolish to attempt to give details of the fine species. I must rest content with saying that the plants are of first-class quality and in first-class condition. There is one grand insectivorous plant, *Nepenthes distillatoria*, raised from seed at Glasnevin, and a remarkably fine species.

Passing through a house of delicate ferns, the *Palm House* is reached. And what can I say of this? The beauty is astounding. The grand tropical foliage plants stand up proudly in magnificent condition, almost surpassing their relations growing in natural surroundings, because in this house neither sun-scorch

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nor violence of wind or rain can touch them. I can honestly say I never go through this house and among these plants without being slightly awed by their fine growth, and being filled with respect for the knowledge and power shown in keeping them, under unnatural conditions, in such superb health. A gallery runs round this house some feet below the roof, and to look down from it into the heart of the plants is a joy not to be forgotten.

The *Camellia House* is the last of this range. Probably the finest group of *Gleichenias* in *Europe* may be seen here. They are ferns from the *Southern Hemisphere*—of wonderful grace and beauty. In the centre of this house *Camellias* certainly stand, but surrounded by many other interesting plants. The benches which run at the sides are always gay and bright with flowers.

I have given a halting, imperfect description of the cultivation under glass at Glasnevin; but I hope I have succeeded in giving some impression of the excellence and value of the collection.

Of the grounds an outline must suffice. There is the herbaceous border, always gay and bright; the *Rock Garden*, well stocked with *Alpines*; an unusually fine collection of hardy ferns; the *Arboretum* is of considerable size, and contains many fine specimens. The '*Rose Garden*' is of distinctly good design, and a similar one arranged on a terrace overlooking a view would give a very striking effect.

One of Glasnevin's greatest charms is the stretch of winding *water* on the left of the gardens. Here hardy water plants abound in profusion, too many to specify, but the *Nymphæas* are really astonishingly fine,

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and flower profusely. The cultivation of them is brought to a wonderful state of perfection. There is a walled-in garden, spoken of by the staff as the 'Lock-up,' as *fruit* is grown here, among other things. The doors are kept locked, a few keys being provided for the use of officials. The fruit-trees are a good example of what may be done by pruning and spraying. Here also are the collections of Species—*Iris*, *Tulips*, and *Narcissus*—and nursery beds of valuable shrubs.

The natural orders are well placed and clearly labelled, and a considerable help to the botanist. As I once said when taking friends through the gardens, 'Here are the orders, all in their beds.' There is a good *economic* garden joining an unusual *vegetable* garden, consisting only of grass-paths and beds well stocked with vegetables on a slope open to the south. A most valuable corner of the garden is the *soil* yard. Hedges run round it, so that nothing unsightly is noticed, and here the various soils used in the gardens are kept. All the old *potting stuff*, *sweepings*, and other refuse go to compose what is known as 'the long heap,' and this is turned over now and then, making valuable material for mulching. A fire of rubbish is burning here, producing '*burnt earth*' for digging into the beds in autumn. Here are stored *leaves*, *sand*, *peat*, and so on. It is a most excellent plan to have a corner of this sort in a private garden. Of course, there are *propagating* pits, propagating yards, and many most interesting sheds and places concealed from the public, but of deep interest and useful to the gardener.

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XV.

PROPAGATING.

July 31st.

FROM this month we begin preparing beds for cuttings, and getting them in order. We look round our plants, and make notes of all we wish to 'get into stock,' as it is termed, and thus increase our material for planting in our borders or exchanging for other species.

Cuttings of many plants root quite easily in the open ground, while others succeed better under hand-lights.

In preparing the place for these last, select a northern aspect. Measure the ground into beds, the length of which does not matter, but the width should be about five feet, or that of two handlights placed side by side. Dig out an 'alley-way,' as it is called (meaning a path), about fifteen inches wide, on each side of the bed; thus you have complete control of every part of the plot, as the centre is easily reached from either path. When these beds are measured out, prepare them by forking them over and adding a little leaf soil and sand. Then place the handlights closely side by side, in two rows, so that no inch of space is lost. Now we have a bed, say, seven or eight feet long by five feet wide, with a path on each side fifteen inches wide, and on this bed we may put about eight or six handlights (all handlights are not the same size), and grow about two hundred plants. A great deal of

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care must be taken to get the surface of the soil inside the handlights quite level and smooth; and for this reason—when watering, if the surface is on the decline, the water will run down to the lowest corner, and soak the plants there, leaving the top ones quite dry.

Water these beds about twenty-four hours before you use them; keeping the tops on the handlights, and so creating a moist atmosphere. When your cuttings are prepared, put them in parallel lines from the centre of the bed to the edge of the path—that is, across the bed, starting about two inches from the edge of the handlight—and leave about three inches between each row. At the end of the row near the path put a label, and on it the name of the plant and the date. Thus you have a neat, workmanlike plot. After giving the cuttings a good soaking of water with a fine rose on your can, leave them covered, and, if very frail, shaded. Shading applies particularly to all Conifers. Indeed, for these cuttings I find a slight wash of ‘*Summer Cloud*,’ the pale green material used for shading glasshouses, very useful and effectual.

When putting the cuttings in, make a hole with a pointed stick, and fill in with a little silver sand, that the base of the cutting may rest firmly on it. This is of vital importance. What is termed a ‘*hanging cutting*’—namely, a cutting of which the end prepared for rooting is not firmly settled into soil—will never thrive; it will dwindle and die. Another very important point is to have the cutting very tightly planted. Test it in the following manner. Pull a leaf sharply. If it tears and comes apart in your hand the cutting is tightly enough fixed. If the whole

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shoot moves when you pull, it needs tightening again. Sometimes it seems very difficult to get the little stem quite firm, but it can always be done, and must be, to be thoroughly successful. Remove the lids of the handlights after a short while for a little each day; and by degrees, as evidence appears that rooting is going on, leave them off entirely. In hot weather keep close and covered by day, admitting a little air by night.

Cuttings are taken at all times of the year and in many ways. Sometimes they must be '*pulled*,' taking a little piece of the wood where the small shoot grows from the main stem. This is spoken of as the '*heel*.' In hard-wooded shrubs it is desirable often to secure this '*heel*.' No cutting must ever be put in with a ragged edge of any kind, for this is likely to rot and set up decay. Always in taking or making cuttings have a very sharp, clean, small knife, but above all it must be sharp.

To secure good cuttings of herbaceous perennial plants, it is best to cut the stems of the species down to about six or eight inches from the ground early in July. '*Heading back*' this is called. Then young growth, sturdy and strong, is thrown up from the base, and that is the growth that gives you good plants for stock. For instance, you buy one plant at three shillings, any hardy perennial. For the first year you keep it in the nursery garden, and cut it back as described. Next season you have ten or twelve good plants of the same species as the parent; whereas if you plant it out for effect the first year, and trust to its seeding for your stock, you cannot rely on a single

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plant being true then or in the future. Of course, *seeds* and *seedlings* are extremely valuable, and thereby one gets fresh varieties ; but you cannot in many cases be certain of getting the plants from seed the same as the parent.

Cuttings of shrubs may be put in from the end of this month. Some may be cut, some pulled, some this way and others that, and if you ask one of the leading horticulturists of the day, 'How do you know when to cut or when to pull?' he tells you, 'There is no rule. Try them. Experience teaches.' To a real lover of plants *propagating* has endless fascination, though I must confess trade work in that direction is wearying ; the desire being not quality but quantity.

Under glass, cuttings may be treated in endless ways. There may be no heat, or bottom heat, or a heated atmosphere ; or they may be kept close or shaded, or none of these. Here there is much to learn, and everything that is delightful to attempt. But for all these methods there is a reason, and it is the study of these reasons that makes the work so interesting. There is an excellent reason why a cutting with a 'heel' is more likely to *root* than another, but the description of this would lead into more technicalities than are desired here.

Propagating by cuttings of parts of the *root* is very interesting, and a fairly certain way of getting rooted plants of some species. For instance, in the autumn I bought a smallish plant of *Dimorphanthus*, As I was about to pot it up, I thought its roots looked very healthy, so I cut off a piece, and put five small cuttings of it in round the edge of a pot. I kept

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it close with bottom heat for some weeks, and now I have five sturdy little specimens potted into three-inch pots—and there are no plants more loved than the ones we have known as babies.

XVI.

ROSES.

August 7th.

WE are all enjoying our *roses* just now, and it is the right time to look at our bushes, notice their requirements, and how we can improve our collections next season. In *July* and *August* we should be ‘*budding*’ our briars, put in for this purpose in our nursery garden last year. These are considered the best months for this process, but it is easy to understand that no absolute rule can be laid down as to time, for the right moment varies according to season. There are one or two rules by which we can be guided. Try the prickles on both the *scions* and the *stocks*; if they readily break off, the bush is in the right state for budding. Try the condition of the *bark*, in which make a short cut; if it parts freely from the wood you know you may safely proceed to bud. In hot weather morning and evening are the best times for budding, both for the operator and the success of the operation. Delay as little as possible between the time of cutting off the shoots you are about to use and getting them tied in. Wild roses in hedges can be budded with good rambling sorts, provided the stock is to

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remain as a hedge rose ; then this kind of work is very effective, but if it is done with an idea of moving the stock later on it is not a wise proceeding. It is unnecessary for me to go into the detail of the operation of budding, for every one who is interested at all in roses knows all about it.

Roses may be propagated by *cuttings*, and many kinds succeed well on their own roots. These cuttings (if from roses grown in our gardens, and not under glass, should be made in October. Take pieces of ripened wood about nine inches long, cut some trenches about the same depth, and fill in the bottom with a little loam and coarse sand, then put in the cuttings, covering them up to about two or three eyes. Press these in very firmly, as a great deal of the success depends on this. If the cuttings are not tightly pressed in, do not hope that a good percentage of them will root. An easy way of keeping them well firmed is by every now and then treading them in on either side. Water them when put in, and place a few ever-green boughs between every second row ; thus they are sheltered from the sun and severe frost.

Roses may be propagated from *seed*. Plants reared in this way vary considerably, and it is always most interesting to note the differences in the specimens. The pruning of roses is an important subject, and I think we are gradually waking up to the fact that a very great deal on the subject has to be learnt. This is the conclusion I have come to after a few hours' conversation with a most proficient grower. The confident amateur will assure you that such a rose needs this or that pruning, but the experienced man, whose

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life-work has been among roses, is less assured, and some startling methods of treatment may soon be popular. A great deal of good can be done by getting out the small and weakly growths in the centre of our bushes. Certainly these must be removed, we all agree ! but why let them appear ? If we look through our bushes in the spring we shall at once see which buds are likely to overcrowd, and we can easily rub out the eye then.

Every season brings new varieties of roses to our notice, but possessing this new variety, with no knowledge whatever of its parentage or history, is a superficial and unsatisfactory way of working.

Many rose gardens are planned, and many are good in design. Indeed, I long to reproduce a formal one I know, in a better position than its original. A really satisfactory rose garden would to my mind be (planting on an extensive scale, certainly), to take an acre or so with a good slope to the south, and there begin a thoroughly comprehensive bit of work. First of all I would like a collection of 'species,' by which I mean roses taken as 'types' to represent the various sections of roses, such as *R. rugosa*, *R. spinosissima*, *R. lævigata*, *R. Banksiæ*, *R. multiflora*, *R. sempervirens*, *R. lutea*, *R. rubiginosa*, with hosts of others, notably *R. Wichuraiana*. This charming rose from Japan, which is in habit trailing, seems to prefer running over the ground to the usual upright position. Round these 'type' roses I would like to plant in abundance the varieties of which they are one parent, and close by I would plant the other parent ; thus, for example, *Wichuraiana rubra* is, I believe, the result of a cross

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between the type 'Wichuraiana' and Crimson Rambler. Therefore close to *Wichuraiana rubra* these two should be planted.

R. Wichuraiana should be planted with a considerable space round it that it may ramble about and do itself justice. At first a few sticks should be put in the ground underneath it that weeds may be removed, and not appear unsightly. When this rose is established weeds will have no chance with it, for it will scramble thickly everywhere. *Jersey Beauty* is one of the loveliest of this class, and *René André*, which is, I believe, *L'Idéal* crossed *R. Wichuraiana*, comes next in beauty. It is by some said to be a new break from Pink Pearl. A good effect can always be produced by either *Eugénie* or *Léonie Lamesch*, and among them *Hyacinthus candicans* or some such plants. These are only suggestions to show the style of planting that is good. All the 'Irish' roses are very desirable—*Irish Modesty*, *Irish Glory*, and so on. *Rosa laevigata* is a magnificent single rose, known also as *R. sinica*. It is a native of the Far East. It has not been thought hardy in England except in the south; but *R. sinica hybrida anemone*, which is *laevigata* crossed with a Tea, is quite hardy, for I know it in grand condition in *Norfolk*. It is lovelier than the type, I think.

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XVII.

CLIMBING PLANTS.

August 14th.

‘DO it in time,’ is the continual cry of one of our greatest horticulturists, and now we should look over *creepers* that have been in bloom, and creepers we want to *propagate*, and give them the attention that makes good plants.

Plants may be divided according to their habit or mode of growth; some plants are erect, some are creepers, some climbers, and so on. Climbing plants play a very great part in the tropical world, and add vastly to the decoration of our gardens and our glass-houses, whatever may be the temperature. The methods of climbing vary, and have been divided into four sections. *Twining* plants climb by twining round their neighbours. It is exceedingly interesting to observe the manner in which these cling to any support near them. In Britain such growths occur in the *Hop*, *Convolvulus*, and *Lonicera*.

Some climbers possess ‘tendrils.’ These are very sensitive to continued contact. If one side of a *tendril* touches a support it appears to grow less rapidly than the other side. Therefore the outer edge is brought round in curves toward the support till it clasps it again. *Tendrils*, strictly speaking, may be of various natures—*stems*, *leaves*, *stipules*, and so on. However, as it is by these that many climbers attach themselves, we must keep a look-out on them, and see that they only are allowed to grow where, and how, we wish them,

CLIMBING PLANTS.

not (as they often do) in a tangled and unsightly mass. Climbers with *hooks* on them scramble about often in a beautiful way, but sometimes in an unwelcome fashion. The only British species, I believe, are *Galium* and *Rubus*. If we look at the tips of the leaves of *Galium* we find a beautiful little hook on the end of each. Root climbers are familiar to us all, for we all know the ivy from our cradles.

Climbers, if they are up pillars or on walls, or however they are growing, are unsightly if the lower part of the plant is bare and straggling. A good specimen is always 'well furnished,' by which is meant that it is not straggling and bare at the base, and should this be the case thickening here must be induced, either by pruning out the old wood and starting a fresh growth from the root, or by taking one or two of the branches and, instead of tying them in vertically, fixing them horizontally, and turning them if possible at a sharp angle upwards. The sap then flows, as usual, as far as the angle, gets checked turning the corner, and thus causes the eye below it to break strongly. Then the matter is in your own hands, for by judicious 'pinching and stopping' you can get the plant as thickly furnished as you wish. When a climbing plant comes from the nursery, and seems to need '*furnishing*,' or to be straggling and thin at the base, do not plant it at once, but stand it in such a position that the stems fall over the edge of the pot. Very soon good strong breaks will appear at the base, and then you can get out any old wood you wish, and train in the young shoots, and by pinching them back make the plant bushy.

THIRTY-NINE ARTICLES ON GARDENING.

Tying in creepers needs a great deal of attention. We all know that raffia, the material generally used, is apt to shrink when wetted. Therefore after rain it is possible that, as the stem swells, the tie may become too tight, and either stop the flow of sap in the part it is holding, or the strain will become too strong for it, and cause it to give way. Either of these results is undesirable, therefore the manner of tying is important. Put your *raffia* round the support, twist the ends over one another two or three times, then pass the raffia round the shoot you wish to firm; tie neatly. Thus, if the stem swell or the raffia shrink, there is a margin of space to be used up before damage can be done to the bark. Particularly is this twist necessary if you are tying to wire of any sort, as it is possible for the wire to damage the young growth. In tying the shoots of fruit-trees in under glass, I have seen a pad of cloth (painted inside with a concoction to destroy insect life) put between each shoot and the wire. A picturesque and most effectual use can be made of *bamboo canes* in keeping creepers and climbers in their place, by driving into the wall a good long staple with a piece of iron about an inch and a half long at right angles to it, and vertically parallel with the wall. On these staples lodge the *bamboo* (and behind the upright piece of iron), and tie the creepers on to them. Or another very useful manner of keeping creepers in position is to hold them closely to the wall by putting bamboo sticks on the *outside* of the plant, which is thus firmed between the wall and the supports. This, for rampant growing things that annually need thinning, is an excellent plan, as you

CREEPING PLANTS.

have only to remove the restraint, and the whole plant is before you unfettered. In growing roses and other things up trees a piece of wire netting with a large mesh fastened to the trunk makes tying in easy; and if this is not thought desirable, fasten wire (copper looks best) round the trunk of the tree, and tie the shoots in separately to it. Do not put just a tie round the shoots in a mass or tie them in—this looks clumsy and unfinished. *Pruning* of climbers is quite as important as tying or planting, and should be proceeded with in many cases immediately the flowering season is over.

In *Chimonanthus fragrans* the young wood must be well ripened, as it is from it we get all the sweetly-scented flowers in the early part of the year—therefore it should be pruned now. *Olearia* needs cutting directly it is out of flower, and indeed this rule is practically universal, except, of course, where *fruit* is needed.

I think we do not realise enough that we try to grow plants that they may please us—not that they may master us. We have all appliances to our hand; and it rests with us, or rather our knowledge, to mould our climbers and creepers into whatever shape or manner we wish, and not to allow them to scramble away from us and become ‘leggy’ and unsightly. Now is an important time to look round—treat them, and notice how to improve them for next season. There are two invaluable rules in pruning and tying: never allow crossing shoots—that is, one over the other—and secure light and air on every branch.

THIRTY-NINE ARTICLES ON GARDENING.

XVIII.

INSECTIVOROUS PLANTS.

August 21st.

THESE plants combine beauty and extreme interest. Their habit and construction are worth a little notice, particularly as three genera, *Drosera*, *Pinguicula*, and *Utricularia* occur in *Britain*, and some species of *Sarracenia* may be planted out and succeed in our climate. *Sarraceniæ* (sometimes called *Pitcher Plants*) are natives of *North America*, and are found in sunny, marshy places. These plants obtain nourishment from two sources apart from the air, through their roots and from the dead bodies of insects captured in their leaves.

The long and slender leaves have their two outer edges fastened together, forming a tube or *pitcher*. As they mature, the tip or top of the leaf is partially released, and forms a kind of hood or flap over the tube. This contains fluid. It was thought that this fluid was merely water which had by some means reached the bottom of the pitcher; but the theory does not hold good, as fluid can be seen in the young leaf before the top has become released, and thus made an opening to the pitcher. The upper part of the pitcher secretes honey, and, when the flap opens, the markings on it immediately over this honey are always more flaunting than elsewhere, and serve to draw the attention of flies to the honey—and to their destruction. For the surface inside the pitcher becomes very slippery, and once the insect has gone downwards the

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return journey is impossible, and the prisoner eventually ends its life by being drowned in the water at the bottom. What a moral for human beings may be drawn from insects and this single leaf of a pitcher plant! The exact process that takes place in extracting nourishment for the plant is not yet definitely known, I believe; but it is certain that if one of these pitchers is cut open a considerable number of flies and other insects are found decomposed here, and experiments prove that if *Sarraceniae* are kept from the access of flies they are less flourishing in their growth, also that they can be kept fresh for months without watering the roots if the pitchers are well supplied.

The flower of this plant is interesting. It is green or red, as the foliage is green or red. It looks like an open umbrella with five ribs upside down. Inside, near the end of each of the ribs, is a tiny point. Each point is part of the stigma. As the insect creeps inside the umbrella to reach the honey in the centre of it, pollen from its body is received on the stigma, and thus the flower is fertilised.

Sarracenia flava maxima is a fine green form with a handsome hood or flap, and very clear and pronounced ground markings on it (just above the honey zone). The margin of the hood is entire. *S. Drummondii* is mottled brown and white. The form of the hood varies, though it is always upright. *S. Drummondii alba* is extremely dainty in shape, and has a good deal of mottled white about it, and a very fine, delicate green tube. *S. purpurea* is a dwarf variety, and has the hood inside densely covered with hairs—a most exquisite piece of work, as each hair points downwards

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towards the centre of the flap in the most perfect drawing. These hairs are so dense that it is almost impossible to draw your finger up against them.

The cultivation of *Sarracenia* is simple. Pot in loose material—sand and peat—and put decaying sphagnum on the surface; always give plenty of drainage, and heat according to species. In planting out hardy species find a sunny, sheltered, moist spot, though I have also seen them flowering in an open position. They do not, however, move well, as they have a very limited root system. *Darlingtonia* (natural order *Sarraceniaceæ*) (*California*) is very like *Sarracenia*, but far more weird in appearance. It is spoken of as the '*Cobra Plant*,' and to some extent reminds one of the attitude of a cobra about to strike. The top of the tube is bent over into a hood, with a fish-tail-shaped flap in front of the opening. The top of this hood has most pronounced marking, and the light shining through it attracts insects to their destruction in the same way as do the markings of the *Sarracenia*. *Heliamphora nutans* (*Guiana*) is a plant seldom seen. It belongs to the same order (*Sarraceniaceæ*); sometimes it is called the '*missing link*,' for the leaves are not fully developed as such, nor as pitchers. Very little is known of the plant, but it is to be seen in good collections. It is a dainty, dwarf-like species. *Nepenthes* (*Nepenthaceæ*) are tropical plants. The midrib of the leaf forms a long tendril that develops generally into a pitcher, which acts in the same way as the pitcher of *Sarracenia*. The edge of it is curved inwards; honey is present there, and some distance below it. Insects, attracted by this and the bright colouring





PITCHER-BEARING INSECTIVOROUS PLANTS.

1. *Nepenthes*.

2. *Sarracenia*.

3. *Cephalotus*.

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INSECTIVOROUS PLANTS.

of the pitcher, get enticed on till they have arrived at the 'slippery zone,' and once that is passed they are doomed to death, for no return is possible. Some of the victims found in pitchers in a garden which I know are mice, cockroaches, wasps, bees, ants, spiders, moths, and bluebottles. The treatment of this plant is simple. Cut back each year. Pitchers form from young growth. As soon as five or six pitchers have been produced, cut back the plant, and it will throw out good young shoots. They are easily rooted from cuttings. I have not seen it done, but I am told the young shoots can be grown easily if plunged in cocoanut fibre and sand in a warm, moist atmosphere; but I have seen and can testify to the truth of their rooting easily if the young shoot is placed through the hole at the bottom of an inverted flower-pot, which covers a little sand and cocoanut-fibre. The roots quickly form, and are drawn down into the soil.

These plants have their stamens (male parent) and carpels (female parent) on separate plants, and are called '*Diœcious*.'

Cephalotus (*Australia*) is another interesting plant. It is not allied to either of the former species, though resembling them, inasmuch as some of the leaves form pitchers, and catch insects in the same way, while others do not.

Drosera, with eighty-four species tropical and temperate, and *Pinguicula* are too interesting to have the description of them crowded into a few words. So more about them will appear in a future article.

THIRTY-NINE ARTICLES ON GARDENING.

XIX.

BRITISH INSECTIVOROUS PLANTS.

August 28th.

WRITING last week about *Insectivorous Plants*, I mentioned those deriving nourishment through leaves which form *pitchers*. The three genera which occur in *Britain*, viz., *Drosera*, *Pinguicula*, and *Utricularia*, also are nourished through their leaves, but these do not form *pitchers*.

The *N. O. Droseraceæ*, has six genera with a hundred species. Of *Drosera* there are about ninety known forms, tropical and temperate, and three are found in our bogs and swamps in this country. Though the shapes of the leaves of the tropical and temperate forms differ to an extraordinary degree, in functions they differ very little. They are covered with small *tentacles*, and emit a secretion which, glittering in the sun, has given rise to the poetical name of '*Sundew*,' by which name they are popularly called. This secretion is mistaken by insects for honey. It is exceedingly sticky, and, once an insect comes in contact with it, release is impossible. These tentacles are remarkably sensitive to pressure. When an insect alights on them, an inward and downward movement takes place, finally placing the fly on the blade of the leaf, where it becomes entangled and hopelessly smothered. Immediately the heads of these tentacles begin extracting all the nourishment possible out of

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the fly, and when this is done at once expand again, send out the sticky sun-dew effect and substance, and await another victim. The leaf itself in some cases may bend into a cup shape when prey has been captured, the leaves almost becoming doubled.

Endless interesting experiments are recorded about the action of acids, ether, and other matter on *Drosera*; the result of one of these I think most striking. It is proved that poison from the *Cobra*, though so deadly to animals, is not poisonous to *Drosera*. The flower of *Drosera* is quite pretty and graceful, though not in any way striking.

D. rotundifolia is the commonest form; it is found in most counties, and should be familiar to us all. The leaves are small and rounded.

D. anglica, which is found plentifully in *Ireland*, has elongated leaves, and is a larger species.

D. intermedia is as common in some parts of England as *D. rotundifolia*. It differs from it and *D. anglica* in the form of the leaf, which is usually smaller and little reflexed. These are the three native species.

D. spathulata, which was introduced accidentally from *Australia*, has deep purple flowers.

D. binata dichotoma has large, pure white flowers.

D. filiformis from *N. America* is said to catch an extraordinary number of flies and insects.

There are many other beautiful forms to be seen at *Kew* or any other botanic garden.

Possibly to an ordinary collector of plants *Drosera* would not seem worth growing, but if once these species have been seen I think we all should wish to

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possess them. *Seeds* germinate quickly and readily, and should be sown in a little chopped *sphagnum* and pieces of small crocks. They should be kept in a warm, moist atmosphere. The tiny seedlings are most exquisitely attractive, and should be transplanted early, for, like the *Sarraceniacæ*, their root system is limited; indeed this seems the case in all plants whose leaves are nourished by insects.

Pinguicula (*N. O. Lentibulariaceæ*), popularly known as '*Butter-wort*,' has a wide distribution, and is also a native of Britain, where we are told it occurs in ninety-one out of a hundred and twelve botanical stations. The leaves, again, are the insect traps. They are covered with sessile and stalked glands. These leaves are rather thick, pale yellowish green, about eight in number, and flat on the ground, having no foot-stalk. The manner of catching their prey is very interesting, as movement in leaves of this texture is wonderful. However, endless experiments prove that insects swept by rain or other causes against the edge of the leaf cause it to roll over upon itself, and enclose the victims. The sessile glands proceed to secrete a ferment, and digest the prey, after which the leaf unrolls again. These plants are a little difficult to establish (through the root system being so undeveloped). I brought several home from *Ireland* last year, where they are to be seen in any quantity growing in damp places on ledges of the rocks with hardly any soil at all. I planted my treasured specimens in a similar position, and every day I fed them with atoms of raw meat, and they succeeded well. Birds are troublesome, pecking them out till firmly settled.





GLANDULAR INSECTIVOROUS PLANTS.

- | | |
|----------------------------------|-------------------------------|
| 1. <i>Pinguicula caudata</i> . | 4. <i>Drosera spatulata</i> . |
| 2. " <i>grandiflora</i> . | 5. " <i>longifolia</i> . |
| 3. <i>Drosera binata</i> . | 6. " <i>intermedia</i> . |
| 7. <i>Drosera rotundifolia</i> . | |

MORE ABOUT IRIS.

However, a few threads of black cotton fastened over them deters the birds, and they soon leave off bothering the plants.

P. vulgaris occurs in Britain, as does *P. grandiflora*, which, as the name suggests, is a finer form.

P. caudata, from *Mexico*, is a most lovely form, pale pink, two and a half inches across, with a long spur.

P. alpina occurs in Alpine districts in *Switzerland*, and has a white flower.

P. lusitanica is less plentiful, and I have only found it once, in the west of *Ireland*. It is exquisitely dainty, the leaves rather yellow and the flower a delicate pink.

There are other insectivorous plants, but they are chiefly interesting to the botanist, not to the ordinary collector.

XX.

MORE ABOUT IRIS.

September 4th.

WRITING some months ago on *Iris*, I said that from *August* to *November* are the only months in which we may not expect these beautiful flowers, and since I wrote many favourites have given us their blooms, and if we have wished to increase our stock we have harvested the seeds, and when ripe we shall sow them.

Many fine forms have been widely exhibited by the trade, and many, no doubt, successfully flowered in private gardens.

The two kinds I wish particularly to emphasise

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are those known as the '*Oncocyclus*' section, and one of those belonging to the '*Apogon*' section known as *I. lævigata* or *Kämpferi*. It is hardly possible to imagine more different treatment than these two forms need, and each in its way is so beautiful that no trouble is too great to bring the plants to perfection.

The '*Oncocyclus*' or *Cushion Irises* are for the most part natives of *Asia Minor* and *Persia*, where through absence of moisture all chance of the plants starting into growth is checked by fierce, burning sun pouring on them continually, denying all possibility of development till quite late in the season, when the long, enforced rest has given the rhizome (or root stock) time to thoroughly ripen and mature. To secure conditions as nearly allied to their natural surroundings as possible is the aim and object of the would-be successful cultivator. Unluckily, here in *England* there is usually too much moisture even in the atmosphere to allow the plants to mature sufficiently if undisturbed, and therefore one or other of two methods of cultivation has to be considered—either the drastic and unnatural treatment of lifting the specimens after flowering, directly the leaves begin to turn yellow, keeping them on a sunbaked shelf in a greenhouse till, starting into growth, the plant demands attention, or the alternative plan of covering the plants with glass, so that a baking sun may reach them but no moisture, for it is easily seen that when a good soaking shower in *July* has descended upon them, followed by hot sun, no rest to the plant is possible, but growth takes place.

In planting these, select the most sun-baked corner

MORE ABOUT IRIS.

in the garden. Ample drainage is of the greatest importance in their culture, as is also the tight firming of the rhizome. Use loam and sand and rubble, and let good-sized pieces of brick and rough stone be put in the soil.

We may easily be deceived, the first year after planting, into thinking that we have mastered the secret of cultivation, that we shall always be successful in flowering these Irises; but the reverse of this is, unluckily, the case, unless we are prepared to give the rhizomes the care mentioned. That the nurserymen have given them this care is the reason of their blooming so well.

In point of beauty, these Irises are very distinct and very marvellous, and as a class have been defined as 'Irises with broad, diffuse beard, stem with one flower only.' They are in form and colour quite unique; and if once *I. susiana*, *I. lupina*, *I. Gatesii*, and, above all, *I. Lortetii*, have been seen we shall never rest till we try to grow them, though in countries where the atmosphere is damp our chance of success is perhaps dwarfed. *I. Lortetii* is said to be 'perhaps the most beautiful Iris in the world.' In colour and size it excels, and has been thus described: 'falls creamy yellow, ground marked with crimson spots, concentrated at the centre into a dark crimson 'signal,' standards nearly pure white, marked with very thin violet lines hardly visible at a distance.' It is native of the southern slope of the *Lebanon* range at an altitude of two thousand feet.

In growing these Irises it is not buying expensive roots alone that will give us good flowers. It is care,

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intelligent planting, and sheltering from any condition likely to promote activity of growth till quite late in the season.

The treatment and appearance of the exquisite variety of the Apogon, or beardless Iris, known as *I. lævigata* (meaning smooth), or *I. Kämpferi*, as it is sometimes called, are entirely different. It is a native of *Eastern Siberia* and *Japan*, and is much the most showy of all the Apogons, with the largest fall blade.

About the culture of this Iris there is a certain amount of discussion, and I have seen a quite dry border being heavily mulched with manure, and been assured that only this is needed to bring the specimens to perfection. Such may be the case for a season or two, but after that, in my opinion, the quality of the plant will diminish. Certainly lime in the soil should be avoided. The banks in the garden at *Wisley* planted with this species are a very beautiful picture, but they take quite a second place when compared to the effect of the plants growing at *Tokio*. Here they are to be seen in their thousands, of enormous size and every colour imaginable. They grow in an open position, heavily manured. Large spaces are dug out to the depth of a foot or so and kept quite wet, indeed, the plants appear growing in water. The sun in *Japan* is, I think, more penetrating than here, and so more moisture may be desirable; but I think there is little doubt that this form of Iris prefers moisture. One is quite wild with excitement, on first visiting the gardens at *Horikiri, Tokio*, at seeing an exquisite pink form. This you feel is indeed a rarity, and a treasure to be infinitely desired: even the stems and foliage

‘THAT NOTHING BE LOST.’

have a lovely *pink* tinge through them, and you instantly determine to astonish your neighbours at home with this treasure. But somehow, going home to your hotel in your rickshaw, spots of pink appear on your gloves and dress. You are confident that you have a treasure before uncultivated, till more and more pink spots appear, and you wake up to the fact that, after all, the colour you find so entrancing has been acquired by placing a cut white flower in a solution of *red* (ink, I think) mixed with water, and allowing it to remain there till it has absorbed enough to create the lovely pink blush we find so fascinating, the dripping of which has covered you with pink spots. The Irises are also used to decorate the *still living* fish which I was courteously invited to eat by a kind Japanese gentleman !

XXI.

‘THAT NOTHING BE LOST.’

September 11th.

THOSE of us who have been wise during the last five months have been carefully watching and noting the conditions and positions of the plants flowering during their season, and making notes of exactly the good and bad points in their culture, thus getting the key to improvements in next season's work. The busy time of the year is now beginning, and the motto of the successful horticulturist, ‘That nothing be lost,’ must be ever before us.

In ordering *roses, bulbs, shrubs*, or whatever else we

THIRTY-NINE ARTICLES ON GARDENING.

may be needing, to be first on the list of the nurseryman is of the utmost importance. We get the best of the stock, and by getting our plants in early we give them the best chance of being well established before the season is too far advanced. Also, if we have been wise, we have carefully noted on paper a plan of our garden and our present crops, for successional cropping is of the utmost importance for the well-being of plants and *vegetables*, bulbs, *carnations*, *sweet peas*, &c., answering wonderfully to the advantages arising from being in fresh, well-prepared ground.

The annual battle with falling leaves will soon begin. If we are wise we have a good store of last season's and the season's before, ready for *mulching* and digging in. The practice of raking all the leaves out of our shrubberies I think is fast disappearing. The material of which the leaves are composed is, of course, the natural nourishment of the plant, feeding it or protecting it, as the case may be, and to spend hours in removing all this, and so deprive the plants of what they crave, seems a misguided and foolish plan. That the front of the borders must be kept clean and tidy is certain—provided only that the plants get all the nourishment they can. Lawns, too, and paths, and ground round the house must be kept clean; and if we are wise we are preparing one or more corners of our gardens where the leaves will all be stored for future use. A good layer of leaves some two feet thick, and then a layer of soil, makes good material for next season's use if turned now and then.

Another important factor in the garden is the *bonfire*, and this it is very difficult, for some unex-

‘THAT NOTHING BE LOST.’

plained reason, to get even the best gardeners to realise. The bonfire should never be allowed to go out. It should always be kept smouldering. Burnt earth is most valuable for digging into beds, and all the refuse materials that are not otherwise required should be put on the bonfire and left to burn, the ashes being carefully stored for use as needed. Prepare, then, one or two places for bonfires, that ‘nothing be lost.’

It is well to see to our garden *drains* before the autumn rains set in. If any sand or other material has accumulated, put it by for use; it will prove of value. Before beginning our autumn work a good clearing up of the *potting-sheds* and such places is desirable. Here a good-sized box should always be kept for the rubbish and refuse of potting operations during the day. At evening this should be emptied on to the bonfire. Old soil, having been used for potting, need not necessarily be burnt, but may be put in a heap or pile, mixed with sweepings and such things, to come in for use later on.

If we have been sensible and harvested our *seeds*, we should look to them, and get them into order for cleaning and sorting in the damp, wet days, and also look through our inventory of *tools*, and compare it with our stock, supplying more if needed.

The *fruit-rooms* should be seen to, and well aired, cleaned, and sweetened for storing. I think the shelves in them may be used for storing *bulbs* till they are put out, when will be the season to use the rooms for fruit. But some people do not hold with this plan. However, it is worth considering and trying.

THIRTY-NINE ARTICLES ON GARDENING.

The *cuttings* made early in the spring should soon be carefully lifted, and be ready to put into their permanent places or nursery beds. For *shrubs* this is far the best plan; and if you are ordering shrubs, be sure to ask for them 'Guaranteed removed' or out of pots, for this reason: if 'removed' they will not have formed a tap root, and therefore they will lift with a good ball, and the moving will not harm them. If grown in pots, of course the roots are well under control; but do not turn them out of the pot without previously watering, that the tiny root hairs, through which the plant derives most of its nourishment, may not be injured or torn in the process.

In turning out and tidying potting-sheds, out-houses, and such places, collect all the used pots, and put them together, ready for washing when the wet dull days come. *Cleanliness* in every branch of the work is of the utmost importance, cleanliness of soil, sheds, houses, water-cans, pots—everything.

A *diary* of each day's work proves very helpful. You can then refer to the work—the failures or successes—of the previous year, and improve on your bad work. Thus you make a great saving of time; for if by giving heat a little sooner, or the reverse, or different treatment, a better result could have been achieved, you are reminded of your mistakes, and thus 'nothing is lost.'

SEPTEMBER.

XXII.

SEPTEMBER.

September 18th.

TO be in time with our preparations is one of the chief roads to success in all horticultural work. A fortnight or three weeks missed at an important time can never be made up in the well-being of the plants, therefore always to be looking ahead is one of the most important duties of a gardener. Preparing ground, potting and ordering plants, form part of this month's work.

But before entering into the details of these operations I wish to add to my list of things to be done, 'that nothing be lost' (about which I wrote last week), the saving that may be made by taking care of our *mowing machines*. I have seen them after a season's work put away without having been wiped, or cleaned, or oiled, the result being considerable delay and expense when they are taken out for use the next season, which might have been spared. Directly, therefore, the mowing is over, have all parts of the machine carefully wiped, and well cleaned and oiled; the blades taken out, cleaned, oiled, and wrapped in good brown paper, and kept in a dry place. Be careful to stand the machines during the winter months on some sound dry material. I saw the rollers in one becoming quite decayed from having all the winter season been allowed to stand on soil.

Preparing soil, where possible, for the coming

THIRTY-NINE ARTICLES ON GARDENING.

crops is important, and if there be any space vacant where *roses* are to be planted, it is well to begin at once getting ready for them. Manure heavily, trenching the ground two feet deep, throwing the surface in ridges to be levelled just before planting; and if we are wise we shall overhaul our stock of pot roses, examining the roots carefully and re-potting such as need it. In doing this reduce the soil on the top and bottom of the ball of earth, so that fresh material surrounds the roots everywhere.

Potting is one of the most important operations in the work of a garden. Long practice makes one quicker and more thorough, but I think a good potter is born and not made. After handling plants and seedlings for years, the difference in the manipulation is very marked. Some will never, one feels, acquire the right touch, just as you may learn music for years, and never play any instrument with the slightest sympathy. For my part, I am confident that if a born gardener were given a plant of which he knew nothing he would rather decide on the treatment for it by feeling it than by looking at it. I know one leading horticulturist who can often recall the name of a specimen by feeling it when his memory fails him for a moment. To cultivate this sense of 'touch,' then, is very important, and it comes largely into play in the matter of potting and soils. What are known as '*hard-wooded plants*' (i.e., *Chrysanthemums*, *Bouvardia*) will usually take hard potting, and soft things (*Begonias*, *Gloxinias*) soft potting. The whole process of potting demands intelligence and attention, and of all annoying things nothing is more so than to see

SEPTEMBER.

slovenly, dirty, bad work. The pots must be clean, the crocks to be used as drainage must be clean, the soil must be sweet and fresh. Supposing, then, that we are potting up *Spiræa* for winter flowering. We recognise at once that it will want firm potting, and we know it is a moisture-loving plant, and on this knowledge the always important point of how the 'stop crock' (or the crock over the hole at the bottom of the pot) shall be placed depends. 'Such a ridiculous detail,' I am sure, would be said: 'how can *that* matter?' But it matters vastly. If placed convexly the water given the plant quickly drains off it, leaving the roots dry more quickly than if placed concavely, for then moisture is to a certain extent retained. Thus the position of this 'stop crock' is all-important. If the specimen is a moisture-loving plant, put a few more crocks and a little of the fibre over from the loam siftings, then soil, firming it before standing the plant on it in position. See that the plant stands level, in the very centre of the pot, and at a good height. The fault of the amateur is to fill the pot too full of soil. Firm the soil in round the plant with a piece of wood cut chisel-shaped, level the surface of the soil and (nearly) always water well.

In potting plants needing drainage, as I said, place the stop crock concavely. Put a good many crocks on this, and a good layer of fibre, leaves, or something of that sort. Put some soil in the pots, and, if the roots are free and not in a ball, put the plant in position, and throw in quite lightly a handful of soil equally distributed all round. Take the specimen between the first finger and thumb of each hand; with the three

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other fingers of each hand hold the rim and side of the pot and shake it thoroughly. Thus the soil gets well mixed in through the smallest roots of the plant. Firm it round, fill in lightly, level the surface, and water. The importance of giving or of withholding water is so vast that a short article can hardly explain it; but here I would say that the plant derives most of its nourishment through its 'root hairs,' very fine little hairs only sometimes perceptible to the naked eye. These hairs grow a little way from the tip of the root, and if they are torn, drowned, dried, or otherwise ill-treated, the specimen will resent the carelessness, and flag.

XXIII.

ORDERING PLANTS.

September 25th.

CATALOGUES are arriving from all parts of *England* and the *Continent*, and we are eagerly scanning them, and, if we are wise, ordering plants needed at once.

Bulbs for forcing should be in, and going in each week or fortnight—*Tulips*, *Hyacinths*, *Narcissus*, *Freesias*, *Ixias*, *Gladiolus*, *Lilium*, and *Lily-of-the-valley*; retarded crowns of this will develop quickly, and should not be held in check, so that others will be necessary for succession, *Berlin* crowns being the best. *Tuberose* should go in every other week—as many as you can get in a six-inch pot, with good drainage and loam. Keep in a temperature of sixty degrees, and

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covered. Do not water till the bulbs start. These are for winter flowering in the house. *Dielytra spectabilis* is very inexpensive, and good for forcing; also *Polygonatum* (*Solomon's Seal*), and these can be planted in the border in the spring.

Among the hardy bulbs the temptations are very great, for there are so many beautiful and interesting plants one would wish to possess. All the species of *Erythronium* (*Dog's-tooth Violets*), *N. O. Liliaceæ*, are very graceful, and should succeed easily. The American forms are sent out in October, and should be planted at once. Give them partial shade, a little moisture, and good drainage. These are quite inexpensive and very delightful flowers. *E. grandiflorum* and *E. revolutum* are charming. *Calochortus* are not so easy to grow, and need an entirely different cultivation. They are also natives of *West and North America*, and belong to the *N. O. Liliaceæ*. The sooner they are in the better. Ample drainage is of the utmost importance to them; for quite a foot below the bulb put broken crocks and sand and thin pieces of stone, then plant them in sand and loam. I would suggest a sun-baked slope for them, as I found them in any number in a similar position in the North American Rockies, about twelve miles from any habitation. Any one growing them successfully cannot fail to be charmed with them. *Fritillaria* is another Northern-temperate plant, and of the same *N. O.* as the other two. *F. meleagris* is the Snake's Head of Britain. The bud stands erect, and so does the capsule, but the open flower is pendulous, presumably a method devised by Nature for protecting the ripe pollen, which would otherwise in rainy weather

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be destroyed. Their culture is extremely simple, any ordinary position and soil suiting them.

Tulips for the open borders lead one into such terrible temptations that it is a venturesome matter to read over the lists of names, and remind oneself of the treasures one longs to possess. Of the single late cottage forms, *acuminata*, *fulgens*, *retroflexa*, *macrospeila*, and *maculata* should each be given a good position. The various forms of *Gesneriana* will always delight us. Groups of *Darwin* tulips planted among roses are quite interesting and effective. They also make a good show in groups or lines in the *Carnation* beds, the glaucous foliage of the Carnations blending charmingly with the leaves of the Tulips. But the gems of this genus of plants, to my mind, are the wild *species*. Nothing can approach them for interest or charm. *T. Clusiana*, introduced from the *Mediterranean* about 1636, is a very lovely little inexpensive plant; the flowers are a delicate white. *T. dasystemon* is more expensive and quite beautiful, rather like a Water-lily when open. *T. linifolia*, from *Bokhara*, with its gorgeous scarlet flowers and a heavy black blotch at the base of each petal, and *T. Orphanidea*, found in *Greece* in 1854 by a professor of *Athens*, are two we cannot be without; and exquisite little sulphur-yellow *T. Batalini* should always be given a place—a dry, sunny one I found suit it best. *T. Greigi* and *var. Greigi aurea* are both grand, handsome flowers, and cannot fail to please. These are only a few of the fine ‘species of Tulips,’ and I should advise every one to try them.

Trillium are charming plants, also N. O. *Liliaceæ*. They require partial shade, good drainage, and a little



SPECIES TULIPS.

- | | |
|-----------------------|----------------------|
| 1. Tulipa orphanidea. | 3. Tulipa linifolia. |
| 2. „ Chusiana. | 4. „ Batalini. |
| 5. Tulipa dasystemon. | |

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peat and sand. There are several forms, and most of them are worth growing.

Another handsome genus belonging to the N. O. *Liliaceæ* is *Eremurus*. They are sub-Alpines from *West* and *Central Asia*. They are extremely handsome, stately plants, and should be planted in autumn. Trouble may arise through frost in early spring, but if we are on the watch we can guard our plants, and bring the flower-spike to perfection. *E. himalaicus* and *E. robustus* are not expensive, and are well worth growing.

And yet another Liliaceous genus is *Eucomis*. It is very charming, and should be planted some five inches deep in autumn, a little light protection being given. The foliage is bold and, as a tuft of small leaves surmounts the flower-spike, the effect is distinct and handsome. *E. punctata* is the species most commonly known.

A great many more genera of shrubs are easily grown in the open than one usually sees. I find them happy at *Kew*, and therefore conclude that the reason of their not being in private gardens is that they are not known. Several forms of *Eleagnus* ought to prove hardy and a pleasure to the possessor. *Pittosporum* is another delightful genus, and can be grown from seed. Several *Veronicas* are of easy cultivation. *Escallonia* in *white* and many shades of *pink* are decorative. I saw lately, in *Norfolk*, *Grevillea* on a wall in grand flower. Great beauties are *Abutilon vitifolium* and *A. vitifolium album*. The first has flowers of an exquisite pale mauve, and many golden-orange anthers. It is N. O. *Malvaceæ*. It needs a warm, sheltered corner, and

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would succeed best against a wall. It grows from seed.

These are a few of the plants that we should think about ordering, if we do not already possess them. With a little care and thought, they will repay us amply, and be a never-failing source of pleasure to us.

Of *Alpines* we long for, the list would be endless, and it is rather useless to give names of species probably already growing for most of us. I can only say of them that they are exacting little autocrats, demanding care, and then, like true aristocrats, responding immediately to the attention shown them by charming us beyond words.

XXIV.

THE ROCKERY.

October 2nd.

FEW forms of gardening give more exquisite pleasure than growing *Alpine* plants. And we create for them a home popularly spoken of as a '*rockery*.'

Why is it they require a place specially prepared for them, and a special form of cultivation? It is because by *Alpine* plants we mean species which occur in the region above the tree limit, which is termed the '*Alpine zone*,' and the link that unites them is the altitude at which they exist. It is true that when growing them in our gardens we cannot give them the conditions to which they are born, but we try as far as possible to imitate their natural surroundings, and thus encourage them to develop.

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They occur in many parts of the world, being natives of *Japan*, *North America*, the *Himalayas*, *Iceland*, and many other localities, and it would take too long to enter into the interesting details of their home life—the atmosphere, temperature, amount of light (caused by brilliant sun), and, more wonderful still, the length of darkness (caused by being covered with snow), to all of which conditions the little gems respond by their surprising beauty; or, again, to describe fully how their roots are kept moist and cool in summer by melting snow continually percolating through shale and sand to them, how there is always ample drainage, preventing damp from settling round the crown of the plant, and how the moisture-loving species are found at the edge of mountain streams, and endless other fascinating details of their history. A season of plant-hunting in the *Alps* will teach more on this subject than any amount of reading, and unluckily here there is only room to write thoroughly practical advice.

Perfectly efficient *drainage* is one of the most critically important points in a successful rock-garden. Therefore, bear this ever in mind. Plants such as *Linaria alpina*, *Androsace glacialis*, *Ranunculus glacialis*, *Saxifraga biflora*, *S. oppositifolia*, and countless others, notably *Campanula cenisia*, are found in quantities, with their long roots running among stones and shale so loosely piled together that you can pull it down quite easily with your hands, and release the entire roots uninjured. Similar planting in this country, of course, would not succeed unless we could insure an incessant water supply such as the melting snows provide; but the kind of culture needed is illustrated.

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Decide on the ground you wish to convert into a rock-garden, taking for choice an open position away from big trees, for two reasons—first, the shading and drip they cause; and, secondly, the nourishment the roots steal out of the ground. An ideal position is a southern slope. If the site be in a hollow, put a ‘fish-bone’ drain through the centre. Measure the space, and make a plan on paper of walks, heights, and depressions. Dig out the paths, throwing the soil up on each side, and mixing with it materials that will promote drainage, such as old brickbats, &c. The quality of the soil underneath does not matter so much, provided it is porous enough not to retain water. Fresh soil is added to satisfy the requirements of each specimen when planted. So far, then, we have mounds of soil, and paths dug out between them.

And now for placing the stones, which looks so simple and easy; but in reality each position has to be carefully considered. It is of the utmost importance that each one is absolutely firm. It can readily be seen that if a stone becomes dislodged it slides down or falls over the plant below it, and in doing so loosens all the soil and the roots and plants above it.

At a corner of your path bury a large stone to within ten or twelve inches of its height. Make it as firm as possible. It is your foundation. The next two stones must lap quite nine inches over it at each end of it, thus making it support them. This is the key to the whole structure. Let the end of every stone firmly rest on the one below it, the lowest of all being sunk as I have described.

Be very careful to provide ample soil for the roots

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to run into. A mistake may easily be made by piling up the stones *first*, and trying to fill the spaces *after* with soil. This plan will never answer; the result will be failure of the plants through insufficient nourishment, for, as I have said, they make very fine long roots needing food and water. Therefore, first prepare a heap of soil, as arranged on your plan, and then dig out for every stone as you place it, each time throwing the soil upwards. All the stones must be firmly placed, and able to bear standing or walking on.

Modelling of any kind can be done with smaller stones when the large, important pieces are firmly placed. You may need protection, shade, moisture, extra drainage, or one of many other conditions for these exacting little plants, and to provide each one with the surroundings it demands needs knowledge and care, and makes or mars the success of your rockery.

Wind is an enemy to many Alpine plants; be careful in placing your stones to leave no cracks or chinks between them through which it may penetrate. I was once shown a specimen by a sorrowing gardener who had accurately followed instructions as to placing the plant in a certain and apparently unsuitable corner. 'How *could* it thrive,' said he, 'with the wind blowing into its very vitals?' and so unintentionally he made me think a good deal.

Shrubs on a rockery are ornamental, and often very useful and necessary, growing round it, or at any particular part of it, to create shelter from winds.

The number of species that can be grown on a

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rockery of ordinary size is quite astounding, and every individual requirement can be considered and indulged in.

Lately I saw in the *Alps* a large block of stone, giving a grand lesson in the value of aspect. One face of this stone was covered with *Primula*, another with *saxifrage*, and a third with *roses*; but the plants were not intermixed. Each had chosen, and succeeded in, the position it preferred.

To describe the building of a rock-garden in a short article is not easy; but I hope I have given good reasons for showing why ample drainage, plenty of soil, and stones firmly embedded are necessary; and, if you have these, you have the foundations of a satisfactory rock-garden.

XXV.

OCTOBER.

October 16th.

THIS is one of the busiest months of the year, and much depends on the work now accomplished. Storing plants and tubers, looking over herbaceous borders, planting trees, spring bedding, harvesting crops, sowing certain seeds, gathering apples and pears, should all be attended to if we want to be successful for the next twelve months. Our *Dahlias*, *Cannas*, *Lobelias*, *Pelargoniums* must be taken up, and protected from frost. Tuberous-rooted plants, such as *Begonias*, should be placed in fine soil or loose fibre,

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and kept dry in a greenhouse or dry cellar (when there is not much glass at command). In lifting these, if the colours be mixed, provide boxes, and place in each a label which shall specify the colours of the plants in that box. Then next season, when putting out, the plants can be grouped in masses of a single shade. The inflorescence of *Begonia* is interesting, having male flowers (represented in botany thus ♂) usually at the top of the stem, the perianth, or petals, being four or two in number. The female flowers (represented thus ♀), on the other hand, are usually borne on lateral branches, and their perianth has, as a rule, five petals.

Any hard-wooded plants which still remain out of doors should be housed early in the month. *Heaths*, *Epacris*, and plants of a similar nature should be given a free circulation of air whenever possible. It is wise to keep some chrysanthemums out as long as possible, having a place in the greenhouse ready for them to be moved into at half an hour's notice.

At this time of the year and onward intelligent giving or withholding of *water* is of the utmost importance. Much moisture is distributed by the atmosphere, and there is no corresponding sunshine and vitality to absorb it, so that very careful use of the waterpot is imperative. It is so much easier to get your plants too wet than it is to dry them up again; and sometimes, when artificial liquid nourishment is needed, the house has to be over-heated to dry the soil before more moisture is given, for otherwise it would choke and destroy the little fine roots which are the channels by which the stimulant is conducted to the

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specimen. *Carnations* particularly resent over-watering. They need only just enough to keep them from flagging, and an abundant supply of air; if possible a side and upper light may be open that they get a current all round them, and just enough heat to keep out frost. About *March*, when they start into growth, water daily, and a certain form of stimulant may be added every other day, the effects of which are startling.

Any shrubs that are to be forced for flowering may be taken up, and 'laid in,' so that they may be potted the first opportunity.

Look round well at the plants growing on walls and buildings. High winds may be expected, which will tear the climbers to pieces if we are not ready for them. Make ample preparation for the storing of leaves; they are too valuable to be wasted. It is well to have more than one place appointed for them; this saves carrying them long distances, and each heap can be used, when decayed, on the ground round it. The heads of plants, such as *Lobelias* and other species, that are cut down will prove invaluable material when decayed and mixed with other burnt refuse, for mulching and various kinds of work. It is grievous to see these things wasted, because they are so needed in helping to nourish other plants.

The borders that had summer bedding in them should soon be cleared, edged, and plants put in which will flower in the spring; and of these we have our store in the nursery garden from seeds sown in the early spring, and mixed with these may be dwarf shrubs helping the evergreen effect.

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Bulbs cannot be too plentifully planted, though sometimes the gardener does not agree to this, for putting each one in separately seems an endless task; and I once heard (unintentionally) some very rude things said to Tulips, and they were roughly told that, no matter how many the man put in, each time he looked in the basket out of which he was planting there seemed more than the time before!

In planting them merely for cutting the flowers, open a trench about six to eight inches deep. Cover the bottom with silver sand, and put the bulbs alternately along each edge, covering with soil, and putting a label with the name of the variety on it always at the end of the row nearest the path. There are various methods of planting bulbs in grass. I have seen a crowbar used to make the hole, soil and sand being dropped into it, then the bulb, and this covered with soil. Another plan is to make holes with a trowel, and plant the bulbs in an ordinary way; and another way is to hack a hole with the wide end of a pickaxe and put the bulb under it, just treading it down after. At first I was horrified at this performance, and thought it could not possibly lead to success; but I found the result quite as satisfactory as either of the others, both of which take much more time and labour. I do not like the crowbar system, as, instead of loosening the soil for the little roots to run into, it hardens it by forcing it out of the way to make room for itself. The trowel process is very slow; so, though the pickaxe system seems entirely unprofessional, it really answers best.

Where alterations are proposed, get to work as

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soon as possible. It is important to get trees in while there is still warmth in the ground, as this stimulates the roots, and promotes action. Many evergreens do much better planted in autumn than spring, so no time should be lost in completing the work.

Work in the vegetable garden is very important just now, harvesting crops of fruit and vegetables; *celery* must be banked; seed *marrows* and beans gathered. *Asparagus* must soon have attention.

XXVI.

MORE ROCK PLANTS.

October 23rd.

THE functions of leaves play a most important part in the lives of plants. They have the power of absorbing material beneficial to their well-being, and of throwing off certain undesirable matter; and for these reasons keeping the surface of leaves clean is very necessary.

The textures and surfaces of leaves give us certain indications as to the aspects and conditions under which the plants grow in their native places, therefore consideration and knowledge on this point give us the key to the methods by which we are most likely to succeed in growing them. But the subject is a large one, and it is only possible to give the merest outline of all that can be known about it. If we note the textures and surfaces of certain leaves what do we

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find? They are glabrous (without hairs), pilose (with scattered hairs), tomentose (with a cottony felt of hairs), glaucous (with bluish waxy gloss), or of many other materials. Now we know that everything in nature has its express meaning and purpose, even the varied forms and substances of tiny hairs only visible under a lens; and so we realise that the different surfaces of leaves are either for protection from heat, drought, moisture, or other conditions, and thus they teach us the special positions and use to which the plants are adapted. Often in subtropical regions there is a long rainless season in the year, and power is given to the plant of storing water, as the leaves may be more or less fleshy in structure. Nearly always in plants from these regions the surface of the leaves is leathery (coriaceous), or again they are often covered with a thick coating of hairs (tomentose). Sometimes a covering of wax occurs (*Aloe*, *Crassulaceæ*, &c.). The leaves of certain species in this climate are closely placed, and overlap one another, instead of being spread open to their utmost extent; and some plants grow in thick tufts crowded together, and this is especially frequent in Alpine plants.

Before putting out our fresh treasures, then, let us pay special attention to the textures and surfaces of their leaves, that we may give them the position and surroundings they prefer. The names and culture of one or two species not always found on a rockery, and yet plants of striking form and beauty may be interesting to those who are collecting rock plants.

Aciphylla, *N.O. Umbelliferae*, of which there are thirteen species from *Australia* and *New Zealand*, is a won-

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derfully handsome, effective plant well worth growing. *A. Colensoi*, of which the flowers are white, are borne on tall stems. It is an evergreen, and forms a handsome bush.

A. squarrosa is more commonly grown than the first, and is often called the *Bayonet Plant*. It is very suitable for a rockwork, and succeeds in light sandy soil. *Celmisia*, *N.O. Compositæ*, also from New Zealand, is a fine genus, needing a little protection in winter. *C. Lindsayi*, imported 1890, needs protection from damp, otherwise it is thought to be hardy. *C. spectabilis* is quite handsome, and was imported from the mountains of New Zealand, 1882. It is believed to be hardy.

For a moist corner two plants that recommend themselves are widely different and both beautiful. *Parochetus communis*, *N.O. Leguminosæ*, a single species, comes from the mountains of Asia and Africa. The flower is a beautiful blue, the leaves trifoliate, resembling those of the shamrock. I have seen it thriving equally well in a stream or only moist position. It is a charming plant, and has open and 'cleistogamic' flowers, the term indicating that some flowers never open, and set seed by self-fertilisation. Another attractive genus is *Parnassia*, *N.O. Saxifragaceæ*. There are nineteen *N.* temperate species: one, *P. palustris* (Grass of Parnassus) occurs in *Britain*. It is a peculiarly interesting plant, and worth studying. The petals, five in number, are white. The flower is 'protandrous,' which means that the pollen of the anther ripens before the stigma is alive to fertilisation. Before the anthers burst they are

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grouped round the stigma; but as each one develops, the filament or stalk on which it is fixed moves outwards. *Staminodes* (abortive stamens) are opposite the petals, composed of a tiny sheath, something the shape of a hand, and on the tip of each finger is a small yellow knob, glistening in the sun, and looking like a drop of honey. It is said flies are deceived by this appearance, and have been seen licking the knobs.

Cyananthus lobatus (from *kyanos*, blue, and *anthos*, a flower, *N.O. Campanulaceæ*), from *Alpine Himalaya* in 1844, cannot fail to please. As its name denotes, it is in colour bright purple blue. It may be grown on a rockwork where the stems can nestle between the stones, and the roots find plenty of moisture among damp leaf mould and sand.

Shrubs on a rockery help to give good effect: *Dwarf Maples*, *Tamarix*, *Abelia*, and many others.

Convolvulus cneorum is said to be only half hardy, but it is worth trying, for it is so very beautiful. It is a shrub; the leaves are covered with fine, silvery, silky down or hairs, and the flower is a silvery pink. Give it a warm, sheltered corner, and try it. Also *Fabiana imbricata*, which is a lovely shrub. It seems incredible that it does not belong to the Heath family, looking quite like a handsome white variety, but in reality it is of the *N.O. Solanaceæ*. It was imported from *Chili* in 1838. Every one should know it and grow it.

Cytisus kewensis is very lovely, and was raised at Kew, 1896.

C. schipkaensis, from the Balkan mountains in 1892, is very charming.

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One of the many methods may be considered before planting a rockery: general effect, convenience, or botanical grouping; but the most important point is to give the plants the position and soil they need.

XXVII.

FRUITS.

October 30th.

EVERY dry fine day at this season is of the greatest value to the gardener harvesting fruit. That this should be done as soon as possible is important. In localities where the crops are heavy the best of the apples and pears are being carefully gathered, handled as little as possible, and stored in the fruit-rooms. Where there is an over-abundance the second-quality fruit is being shaken from the trees, and with collected fallings, sent to the nearest jam factory, realising quite a good price.

Various are the methods for keeping fruits. Each county seems to have a special plan. Ventilation, absence of light, and an even temperature I have always believed necessary, but one hears in these days of many other arrangements. The one specified has so far proved sufficiently satisfactory.

Sometimes in speaking of the 'fruit' of a Geranium, Hypericum, Iris, Rose, or any other plant, I find I am not understood. There seems a popular belief that fruits belong only to such plants as *Apples, Pears,*

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Raspberry, and all the other delicious things we eat. I was writing about the fruit of a *Geranium* (it has a particularly beautifully formed fruit), and I was told I should be entirely misunderstood, and that it would be thought the plant grew apples or pears. What, then, is a fruit, and how far do we speak accurately in applying the word?

The flaunting colours, pronounced markings, or delicious perfume of a flower exist solely in order that insects, or other animals, may be attracted to it. The insect, when thus attracted, is fulfilling a triple mission. It is securing food: it is collecting pollen which it will carry to the specimen it next visits; and it is conveying to that individual flower the material (pollen) already collected, which will stimulate into growth the otherwise dormant seed. When this has taken place and an individual life has begun, the substance surrounding and enveloping it is, in time, termed the fruit.

Thus we see most of the plants to which we are accustomed bear fruit, and very beautiful are their varied forms, colours, and textures; indeed, they are a subject of endless interest, for they may be 'simple,' as in Oak or Cherry; they may be 'aggregate'—several similar fruits formed from a single flower—as in Raspberry or Buttercup; or they may be 'multiple'—formed from more than one flower, as in Mulberry or Fig.

This is a very wide division, giving no idea of the hundreds of exquisite and subtle distinctions there are between the fruits of a single genus of plants. Indeed, in many cases it is principally by the fruits

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that the species are classified. In some cases when a plant has reached its fruiting stage it has arrived at the end of its life. This is particularly the case with *Bamboos*. Thirty years is said to be the length of life allotted to a Bamboo.

Asking one day for the identification of a variety, I was answered: 'We want the flower to identify it, and when we have the flower we don't want it.'

Of all the sorts and shapes and sizes of fruits it would take a very long time to tell, and an almost endless history might be written of the subtle and exquisite detail of their form; and, moreover, every slight difference is for a wise and good purpose, and as a help to the specimen to perpetuate its tribe. The *N.O. Umbelliferae*, for instance, to which so very many of our British plants belong, has endless variations in its fruits. The wild *Carrot*, *Daucus Carota*, the *Fennel*, *Fœniculum vulgare*, the wild *Beaked Parsley*, *Anthriscus sylvestris*, or the common *Beaked Parsley*, *Anthriscus vulgaris*, are each distinguished by minute difference in their fruits.

Could there be a more fascinating, interesting study? 'By their fruits ye shall know them' are words familiar to most of us, and come from a book where common-sense and wise sayings are written. And we feel very much in touch with the horticulturists of nineteen hundred years ago when we realise that, after this length of time and all the scientific work that has been done, no better classification of plants has been invented, and it is still by their fruits we know them.

It is now, I hope, quite clear that there is a vast

FRUITS.

difference between a seed and a fruit; a point of great wonder is the variety of methods by which the fruit releases the seed it envelopes. It may open or split in a certain direction, and allow the seed thus to escape (may be 'dehiscent'), or it may remain closed; a pea-pod, for instance, 'dehiscens' along both sides. Some fruits break up into divisions, each containing a single seed, and some, by the action of the stem coiling spirally, eventually reach the earth and become embedded. Thus fruits of certain species are protected by being kept below the soil.

A remarkable fruit is that of the *Water Lily*—*Nymphæa alba*. It forms a large berry well known in appearance to most of us, and containing many seeds, each of which is covered by an 'aril'—roughly speaking, an outer coat. Between this and the seed are air bubbles. The fruit ripens under water, but when it opens (dehiscens) this mass of seed rises to the surface, and there floats till some condition or other causes the air to escape, and then the seed sinks to the bottom and *germinates*.

The ripening of fruits is an exhausting process to the parent plant, therefore if we do not wish to harvest the seed, or utilise the fruit either for decoration or consumption, it is well to remove it. In *asparagus* it is never time wasted to let a hand run up the stems and remove the berries; much of the nourishment that should be accumulating in the crowns is being bestowed on developing the fruits; and in this plant it is equally important that the stems should not be broken and, above all, gathered for decoration, for it is through them principally that the roots receive

THIRTY-NINE ARTICLES ON GARDENING.

benefit, the leaves being so small that they are not able to do much for the welfare of the plant.

Fruits of all kinds are now abundant in our hedges and in our gardens, and each one is well worth a few minutes' study.

XXVIII.

NOVEMBER.

November 6th.

THE work that may be done during *November* varies very much with the kind of weather we get. Supposing it is an open season, there is a good deal to be achieved, and among other things there is usually some part of the ground to be *trenched*. This is an important operation, and a thoroughly good knowledge of how to set about it is very valuable.

When you have decided how you will crop your vegetable garden, you will know which piece of land needs preparing for the next season's potatoes, or whatever you intend to plant. Cart to this piece of ground the materials with which you mean to enrich it—burnt earth, decayed manure, or whatever it may be. Set your line across the ground at one end, and open a trench along it, which must be two feet or two and a half feet wide, and at this distance set another line parallel to the first. Dig the soil out between these two lines, the depth varying according to the quality of the subsoil, but never bringing bad material to the surface. Remove the soil you dig out to the far end of the piece of ground you are going to trench, for

NOVEMBER.

there will be an empty space two and a half feet wide when you come to it. And now to begin the real work. First of all thoroughly fork the bottom of the empty space, and spread well-decayed manure over it, previously having taken up the first line you put in, and placed it two and a half feet distant from the second one. Dig parallel to the line, half the first or 'top spit,' as it is called, and throw the soil on to the manure; the other half 'top spit' dig at right angles to this, so that you do not trample on the piece of ground you will next be working. Now follows more manure, evenly distributed, and the whole is completed by having the bottom of the trench you are making put on the top of the first trench opened.

During this month *cuttings* of hard-wooded plants may go in. These must not be pulled or broken at a joint, as in some cases may be done, but must be made with a good clean cut with a sharp knife, and put under a hand-light in plenty of sand beneath a north wall. Care must be taken with cuttings of conifers, such as *Retinospora*, *Cupressus*, *Thuja*; they are not easy to root; ventilation and shading are the most important points.

In gardens where fruit trees are well looked after 'spraying' takes place twice a year, and the effect of the operation is really wonderful. No track or speck of moss or fungus growth is to be seen. The stems look burnished and polished. The whole aspect of the tree is prosperous and well-to-do. The materials used for this purpose are a mixture of *American potash*, *caustic soda*, and *soft soap*, and three gallons of *boiled water*. The machine which contains it is of French

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make and of the knapsack fashion. Care must be exercised while using this mixture, for if spilt it burns your clothes and (if they are not guarded) your hands. Though only caring for *vegetable* and *fruit* growing as useful knowledge, I must confess that a wall of thoroughly well-trained, well-pruned, and well-sprayed fruit-trees is a satisfying sight, and one can appreciate it in the same way as one can a well-turned-out carriage and well-groomed horses.

Plants in the houses suffering from blight should be cleansed. If the surface of the leaf is dirty, and the 'pores of its skin' cannot work, proper taking in of good and giving off of bad material is hindered, and the plant suffers. For this cleaning purpose use *fir-tree oil* and water, with a small hand-sprayer, or, if necessary, a sponge.

Spiræa for flowering later on should now be potted. *S. venusta*, *S. palmata*, *S. astilboides*, and *S. japonica* are good useful forms. As this is a moisture-loving group, the 'stop crock' at the bottom of the pot should be placed concavely. These need hard potting (the soil firmly pressed in). *Zonal Pelargonium* (usually inaccurately spoken of as *Geranium*), cuttings of which were taken about the end of July, may be potted on into four-inch pots. These will be useful for decoration in the houses later on. *Bulbs* potted at the beginning of *September* should now be moved into heat from a cold frame.

Long, rambling shoots of *Roses* should be cut back. The wind swaying them about loosens the root-hold of the plant, and this is undesirable. With very few exceptions firm planting is invaluable. *Cactus* and

WINTER PLANTING.

succulents being potted on or surfaced require a good mixture of loam and sand, no leaf mould. Ample *drainage* is of the utmost importance ; stagnation about the roots will be fatal. The texture of the leaves teaches us that they are storing a good amount of fluid, and we know that these plants are natives of sandy, sunny places. Moisture clinging about their roots or the crowns will be fatal to them. In case of cold, look well after cuttings and small young plants, as frost lifts them and loosens the soil about them, and thereby does great harm. Also, in case of frost, wheel material to the ground you will be trenching when the weather breaks. Mulch plants that are delicate or likely to suffer, and over very moisture-resenting species place a piece of *glass fitting* into a wire stand made for this purpose. A good deal can be done for special plants if guarded in this way.

XXIX.

WINTER PLANTING.

THE SELECTION AND GROUPING OF SHRUBS.

November 20th.

THE weather is particularly favourable for getting on with planting for winter effects. An immense deal can be done by judicious selecting and grouping of certain genera, and I hope to suggest a few combinations of colours that may be useful. It is difficult to give very minute detail about the preparation of the soil for this planting, because the conditions

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desirable in one locality would be entirely unsatisfactory in another, so a certain amount of initiative must be left to the gardener. But about two or three points there is never any doubt. That the soil should be well dug and prepared is essential, and that the shrubs or plants should be very firmly planted is equally important.

Before putting your specimen into the ground examine the roots very carefully. Any found broken or bruised must be removed with a sharp, clean knife, the cut being made between the fracture and the plant. Place your specimen in the hole prepared for it, being very careful to lay each little *rootlet* out in the direction in which it is growing. Then cover lightly with soil and shake the plant gently, for this reason, that every little root may be surrounded by soil and push its way among material that will nourish it. By degrees fill in the hole with soil, and finally tread firmly, being sure that no amount of wind can sway it enough to loosen it.

In the case of standards, good staking is of vast importance. Be very careful that the material used for firming the stem to the stake cannot chafe or destroy the bark. If this happen it may be a fatal proceeding, and too much care cannot be exercised to prevent such a disaster; and I may mention here that tying is a very important piece of work in every case, and plants need continually watching, for, as the stems thicken and the weather contracts the string or material used in tying, risk is run of the stems being injured. Labels attached to stems by wires or strings may easily cause destruction if not watched. So much, then, for the planting.

WINTER PLANTING.

COLOUR EFFECTS.

There are certain forms of *Berberis* which give most excellent effects in winter, especially *Berberis Thunbergii*. Just now the bushes are a mass of golden scarlet, quite a flame of colour, showing up splendidly, especially surrounded with a glaucous-leaved *veronica*. A large group of *Cornus sibirica argentea elegantissima* make a fine background for these plants, and these are backed again by several *Prunus Pissardi*, grounded with *Atriplex Halimus*. Beyond this are groups of *Ilex*, and on each side of the *Prunus* a large planting of *Ligustrum japonicum aureo-variegatum*, banked by the *Purple Nut*, *Corylus Avellana purpurea*, a very handsome variety; and on each side again of this, big clumps of *Aristotelia Macqui variegata*. This plant is very valuable and effective, but, being a native of *Chili*, is delicate. It responds to hard pruning, making a very fine, effective bush, with its *red* stems and *white* and green leaves. All of these plants but the last are hardy, of easy culture and moderate expense; but in buying shrubs it is well to get them 'guaranteed removed' or out of pots, for if they have made a long central root, spoken of as a 'tap-root,' it is difficult to move them without injury to it.

If *fruit* trees are being put in, and space permits (I mean in the case of planting an orchard), it is wise to allow room between the trees for a plough to run. It is possible 'root-pruning' may have at some time to take place among these trees, or you may wish to raise them a foot or so higher in the soil. Therefore it can easily be seen that to prevent a 'tap-root' forming is desirable. It is a good plan to put a slate

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under the centre of the tree in the hole prepared, and thus prevent a long, firm root penetrating far into the soil.

SHRUB CUTTINGS.

Cuttings of shrubs should now be started in our nursery gardens. Open a trench, putting a fair amount of ashes in the bottom of it, make the cuts of the pieces you wish to propagate with a clean, sharp knife, place them in the trenches prepared, and tread the soil very firmly.

Push on as fast as possible with work among the Roses. Unpack them very carefully, and lay them in by the 'heels,' as it is called, very tenderly, till their permanent quarters are ready for them. Roses in pots should be brought into cool shelter before severe weather sets in. In northern districts it may be thought desirable to mulch all the tea varieties before the month is out ; and a rule exists in some gardens of covering the bushes to the depth of some inches, and pruning in the spring below the level at which the mulching was placed.

Stocks for next season's buddings should now be put in. Where *seed* has been saved, it should now be gathered, and any that is to be harvested put in some safe place among silver sand ; then, as the fruit round the seeds die away, they remain dry among the sand. All wild growth from the budded stocks should be cut away, leaving only one or two buds on those lateral branches which have been successfully operated on.

PRUNING OF TREES.

XXX.

PRUNING OF TREES.

November 27th.

THERE is so much interesting work on hand now that it is impossible to write about it all; but one of the most satisfactory and important things is thinning, *pruning*, and cutting of trees. This needs a practised hand. When watching the men at work it all looks so simple and easy; but try it yourself, and you feel quite overpowered with even the small branches that the experienced man manages without the slightest effort. Time is saved in the end by employing skilled woodmen, for it is not the actual thinning that takes time, but sawing the limbs taken out into portable lengths and binding all the small pieces together—a process spoken of as '*faggoting*.' Sorting them ready for carting is a tedious business in any case, and when attempted by the unskilled, well-nigh hopeless. The wood needs separating for its destination, at the time of clearing, be it the timber-yard, the shed for fire-logs and kindling wood, the shelter for pea-sticks, or what it may.

The reasons for trimming and cutting our trees are many. They may be overcrowded, unbalanced, ill-grown, or you may wish to clear a vista for a special view—there are endless reasons, which every one can see for himself—and the great point about it is that now is the time to do it. Why? Well, because the leaves are (or should be) off the trees, which makes the limbs

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less heavy to move, and the sap is going down. But, 'That's another story,' not to be told here; it leads one into fascinating but unnecessary detail.

Before beginning to operate on your specimen, take a good look at it all round. Decide why the work is to be done, and ever bear that point in mind. All weak, poor, ill-grown wood must be taken out. I find it saves a good deal of moving of ladders and so on if I let the woodman use the long-handled pruning-knife when he is up in the tree. In a case of particularly fine tree-trunks and stems, you must cut away to entirely develop these. Be sure to leave no growths round them, but let them stand out with a clearly defined outline.

Always paint over the surface of the wound made by the saw in taking off a limb. This prevents 'bleeding,' which would not at this time of year be a great matter (by 'bleeding' I mean shedding of the sap or life of the tree); it also prevents the parts surrounding the wound decaying by penetration of damp or fungus growth.

Any levelling or working with soil should be carried out while the weather permits; getting in drain-pipes for tennis or croquet grounds in dry weather is important. Every one knows that, in draining, the lowest part of the ground should be chosen for the outlet of the water, and that the pipes should be surrounded with some good material, such as clinkers, to allow the moisture to percolate through them. We shall have been wise to watch all through the season the effect of rain and drought upon any

PRUNING OF TREES.

surface we wish to remodel, for then we shall know exactly the amount of *drainage* required.

Storing of leaves is an important part of this month's work. The heaps that we have saved from last year should be turned over, and will soon be ready for use. They are extremely valuable for mixing with potting material, mulching, and other things.

Violets must be overlooked continually, and air given to those in frames as much as possible, and runners all kept cut off. For a good rush of late blooms I reserve some plants, keeping the flower buds and the runners well in check. About six weeks before I want the flowers I surface these plants with a little fertiliser of some kind, still keeping the runners cut back, and the result is a grand crop of fine flowers, last year winning me several prizes. The colour is good, the size improved, and the texture firm. Altogether, the flowers thus produced are very valuable and satisfactory. '*Old Irish Blue*' is a charming little form; '*Admiral Avellan*' a good large single species of deep red purple; and '*Mrs. J. J. Astor*' a good double form of the same tone, in a much lighter shade.

Flowers at Christmas-time are valuable. *Arum* Lilies, *Azalea*, *Lily-of-the-Valley* (retarded crowns that take about six weeks to develop flower) are all easy to force, and valuable for decoration. *Arum* Lilies that have been potted on in a cold house for some time are now just going into heat.

Carnations, being grown in pots, must have little water to keep them healthy, and given as much air as possible. Air is so important to their well-being that

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it is wiser to put on a little heat and have ventilation than to keep the house closed. Spraying and syringing for blight or rust must be avoided till *March*. Should disinfecting be necessary, fumigation must be resorted to. These plants need endless care and constant watching, particularly in tying; for as the stem grows between the ties it 'kinks' or becomes bent, and, unless it is released, straightened, and retied in time becomes difficult to manage, and any attempt to straighten it usually ends in breaking it.

If we have not already done so, we should transplant into nursery beds the cuttings of shrubs and herbaceous plants rooted from last year. Put them in lines in beds about four feet wide, with a good, clear, satisfactory label in front of the last plant of each species. *Veronicas* are very useful plants, and easy to root. *Autumn Glory* and *V. chathamica* are two of the nicest. The last may be a little delicate, being a native of the *Chatham Islands*.

XXXI.

A TALK ABOUT ROSES.

December 11th.

WE are all busy getting our Roses in order, and there are a few singularly attractive, though not very popularly known, forms that may be thoroughly recommended for beauty, and mostly for easy culture.

Perhaps the lovely and quite hardy form known as the '*Camellia Rose*' is worth the first place among them. It is a variety of *Rosa lævigata* (smooth), or its

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synonym *R. sinica* (*Chinese*). Its botanical name is *R. sinica hybrida Anemone*, and the flower is so beautiful it is worth while learning its proper title. The flowers are large and single, of a pale silvery shell *pink*. The leaves are *evergreen*, and with a beautiful shining surface and a good rich colour. It is seen to perfection scrambling over an old wall or ruin, or in some such position. That it is quite hardy has been proved, for I know a grand specimen of it in a bleak part of *Norfolk*, and another in *Hertfordshire*, twelve miles from *London*. Every one will welcome this delightful addition to their collection. The 'type,' or first species known of this form, *R. sinica* (or *laevigata*), is a native of the Far East. I have seen hedges and hedges of it in *China*, but here, unluckily, it must not be looked on as entirely hardy, though it is well worth trying in a warm, sheltered nook, for it is so beautiful. The foliage is glossy and evergreen, and very graceful. The flowers are single, pure white, and five to six inches in diameter. The plant is worth growing for its foliage alone; and if it flower, so much the better.

There are many other single or semi-double Roses of great beauty well worth cultivating, and one of the most charming is, I think, 'Dawn' (parentage, I believe, 'Mrs. Paul' × 'Caroline Testout'). This has very large, nearly single, pink flowers of an entirely different texture and colour from the 'Camellia' Rose, being much firmer and stronger in habit. It is very charming when planted in a fairly open position, with the branches brought down and tied to sticks about a foot in height, and radiating their full length from the centre of the plant. When you look down on a

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mass of beautiful pink blossoms, in trusses of three and four, the effect is very striking. This variety is perfectly hardy, and may be grown anywhere. Be sure to pick off all the flowers as they wither, and thus ensure a second crop of blossom.

Another valuable and charming bush is *Rosa rubrifolia*. In catalogues it is described as having 'handsome reddish wood and foliage, flowers pink, fine for landscape planting,' and when I add that the foliage has also a blue-grey bloom and flowers growing in good trusses of a lovely shade, it can easily be seen that it is a very useful plant. I saw it in a border with tall, mauve *Campanula*, and the *Poppy* 'Darkness,' and a more delightful group it was not easy to find. Also I had it in a border with *Iris Jacquiniana* (a good red-bronze flower), and they looked well together.

There is another very interesting bush Rose, *R. sericea* (silky). The flower is white, and has usually four petals instead of five. The leaves are silky beneath, which fact, I suppose, first originated the name. It was imported from India in 1822. And, again, a very beautiful, easily-cultivated Rose is *R. bracteata* (large bracted), also known as the *Macartney Rose*, introduced from China in 1795. This is really a grand species, with its fine, firm, large, white, single flowers, foliage shining and glabrous (without hairs), and erect branches armed with strong prickles. Trained on a wall, it is very handsome (in Cornwall in full flower now) and of easy culture; and there is yet another grand, white, single Rose most useful in hedges, making a fine bold break in them, and that is *R. spinosissima* (very spiny), *var. altaica* or *grandiflora* (these are

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synonyms). It comes from Eastern Europe, is a quick grower, easily propagated, and forms a fine edging to a shrubbery.

Of climbing or rambling Roses a good deal may be said. These are very charming running up among the branches of trees, and throwing up big trails of their glorious flowers. I mean to grow a Rose familiar to most of us, 'Bardou Job,' with its semi-double rich crimson flowers darkly shaded among a *Pyrus salicifolia* (willow-leaved), which has white flowers, leaves silvery beneath, and white woolly buds; and then, among *Prunus Pissardii*, which is a very handsome ornamental tree or shrub with red-brown foliage, introduced a few years ago from Persia, I shall hope to see 'Paul's Single White,' which has large, pure white, single flowers, and belongs to the hybrid perpetual class of Roses.

For creating good effects in masses of colours the two Lamesch Roses are both excellent, 'Leonie Lamesch' being vigorous, and giving a fine show of coppery-red flowers shaded with deep red and yellow, 'Eugène Lamesch' being not so deep in colour, but equally useful. Again, 'Madame Eugène Resal' is admirable in a group. It belongs to the Chinese (*R. indica* or Bengal) division—as does 'Laurette Messimy,' and this is one of the most distinct and delightful of Roses. One of the nicest forms for a pillar is, I consider, 'England's Glory.' It is a grand salmon-pink, and I believe 'Gloire de Dijon' and 'Belle Siebright' are its parents. It really is very attractive, hardy, and needing little attention; if the old canes are cut out when necessary, no further culture is wanted.

The new large group of Roses known as *Wichuraiana*

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(Wichuray's) are becoming more and more popular, and most deservedly so. This Rose was first introduced from *Japan* and *China* in 1880-1891. It is a profuse-flowering, prostrate bush; the 'type' (I mean the original form) had large, white, single flowers. Of course, these very quickly followed hybrids of kinds, in some of which traces of the tea-scented forms could be found. This class of Rose is charming planted on banks, where it can scramble at will. At first it should be kept off the ground in the same way as I have described the growing of '*Dawn*,' that the grass and weed underneath it may be reached and kept in check till the growth of the Rose has stifled them. Of this form, the following varieties may with safety be given a place, and are sure of finding favour in every garden: '*Jersey Beauty*,' '*Sweet Heart*,' '*Gardenia*,' '*Alberic Barbier*,' '*Auguste Barbier*,' '*Wichuraiana rubra*,' and many others.

The *Penzance Briars* are delightful, as are the *Banksian Roses*—so named in compliment to *Lady Banks*, who introduced them from China in 1807—and the *Evergreen Roses* (*Rosa sempervirens*) are always ornamental and good to possess. There is a class of Irish Roses of much value, '*Irish Glory*,' '*Irish Modesty*,' '*Irish Beauty*,' '*Irish Harmony*,' and others. These are all vigorous growers and delightfully pretty.

HARDY BERRIED TREES AND SHRUBS.

XXXII.

HARDY BERRIED TREES AND SHRUBS.

December 18th.

JUST now *berries* are in our mind, for *holly* and *mistletoe* are to be used everywhere; but there are other berries quite as attractive and interesting, and, in an open season like this, birds have not been so anxious for them, other food being plentiful, and many still remain on the plants. One species remarkably beautiful and familiar to us all is the 'Fire Thorn' (*Cratægus Pyracantha*), with its fine clusters of glowing *vermilion-coloured fruits*; and, that we may be certain to possess it, order it now, for nurserymen will not forget to deliver, while we may not remember to order at the right time, which is *March* or *September*. Secure the plants from pots, that in transplanting the roots may be as little disturbed as possible.

The plant is slow-growing, so a good plan is to put in beside it a variegated *Ivy* or a *Virginian* creeper, in order that the upper surface of the wall may be clothed while the *Cratægus* is growing. Be careful, however, to see that the *Cratægus* is not stunted or suffocated by its more vigorous comrade. Always leave plenty of room, lest its growth be hindered; and when it has attained the desired height, cut away the other creeper, and by degrees remove it altogether.

Useful, handsome, and effective berry-bearing

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shrubs are the *Cotoneasters*. They produce a good supply of very brilliant and effective fruits, which probably will remain through the winter. For habit, I think the most charming is *C. horizontalis*, a native of *China*. Its almost frond-like branches are so attractive that no garden should be without a specimen.

Perhaps the sweetest and loveliest of all are the *Pernettyas*, both easy to grow and inexpensive to buy. Though they come from fairly warm parts of the world, luckily they seem to have adapted themselves to our climate. They belong to the *N. O. Ericaceæ* or *Heath* family, and in summer produce myriads of small, bell-shaped flowers. These are replaced by berries in the autumn, which are most lovely, any colour from dull red to white, the white and light pink forms being charming indeed. *Pernettyas* are supposed to like peaty and vegetable soil and a sunny position. This last they certainly appreciate, for if they are grown in the shade they become rank, and do not berry well. Another great comfort concerning them is that they move well, a plant three feet or more seeming to experience no check when transplanted, and therefore we can get immediate effects in using them.

Then we have the very good orange-coloured berry of the *Sea Buckthorn* (*Hippophae rhamnoides*), *N. O. Elæagnaceæ*. One characteristic of this plant is that the branches always end in a sharp, long, narrow thorn. The growth is effective, the foliage of a bluish shade, and the berries, as I said, orange. It thrives within easy reach of the sea-spray. I have it planted in a group on the banks of the *River Fal*, with *Tamarix*, *Escallonia*, and *Atriplex*, and very well they look

HARDY BERRIED TREES AND SHRUBS.

together, and excellently they thrive. The roots penetrate in sandy shingle or light soil. The male and female flowers are not produced in the same specimen, so care must be taken to provide plants of both sexes, or no berries will appear. Seedlings mostly prove to be male plants, so when you have succeeded in obtaining a fruit-bearing parent it is wise to layer it, and thus be certain of perpetuating its qualities. The *Snowberry* is a familiar plant to us all, and keeps its berries well into the year. This species responds to an annual spring cutting to the ground. It then throws up a quantity of well-fruited young shoots.

A good many other genera of plants answer, for various reasons, to this treatment, and not for berries only—some for stem-colour effect, and of these I hope to write another time.

If we are lucky enough to secure fruits on our *Arbutus*, we indeed have something beautiful. Sad to say, these cannot be relied on to develop except in warm, favoured spots, though I have seen them in *Hertfordshire*. In the south of Ireland one is greeted by glorious specimens of these attractive-looking fruits, and one longs to eat them! *Arbutus Unedo* is the famed tree of Killarney, and is reported to have berries an inch or so across, and this I can well believe. As it is of berries I am writing, I may not pause to describe the growth and stems of *Arbutus*; both are lovely.

Next comes in beauty, I think, a nice, dwarf, little shrub, *Skimmia*, which we see covered with bright scarlet berries of a fine colour and texture. *Skimmia japonica* is the one most useful.

So I have not mentioned *Aucuba*. For some

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unexplained reason many ladies have a great dislike to this very handsome shrub, which was first known in England as a hot-house plant. Here, again, one must have the two parents to secure berries, and when pollination has taken place, and this is achieved, it is, I think, hard to find a handsomer plant than the *Aucuba*. Sometimes the pollen parent ripens before the female parent, so it is well to collect some pollen, and keep it fairly dry, and dust over the female flower with it when it is matured.

The two Hollies (*Ilex*), with their red and yellow berries, are always beautiful and welcome. The *yellow*, being less common, is highly prized; and of this the *camellia-leaved* form and *var. Hodginsii* are effective in leaf and fruit. Some shrubs will bear the knife anyhow, anywhere, and apparently not resent the treatment; but Hollies need care in handling, or the specimens may be ruined.

Mistletoe always attracts a good deal of interest. It is obtained by pressing a seed into a notch made in the underside of the branches of certain trees. This operation should be carried out any time from *January* to *March*. *Mistletoe* will grow freely on apple-trees, thorns, poplars, limes, sweet chestnuts, maples, and others. The quantities seen everywhere just now come, I understand, principally from northern France.

HARDY WINTER FLOWERS.

XXXIII.

HARDY WINTER FLOWERS.

December 25th.

SOME of us are lucky enough to be enjoying the blooms of our *Iris unguicularis*, a charming plant, native of Algeria, proving quite hardy in this country, even in some of the bleakest parts of Norfolk. This year the first flowers were gathered here on October 10th, and for the last month have been supplying about a hundred and fifty blossoms each week. These specimens are planted in the poorest soil, close to the outside wall of a stove house—where a trough was formed by placing boards about two feet from the wall, into which the Iris were planted—and left undisturbed. It is difficult to exaggerate the charm of the flowers, coming as they do when most things outside are of a dreary shade of colour and there is very little blossom to be seen anywhere.

These plants should be procured as soon as the blooming season is over, say April, and planted at the foot of a south wall, or as nearly south as possible, in very poor soil, and given a few good soakings of water during the summer. It can readily be understood that, coming from sandy districts in Algeria, they are not accustomed to moisture, do not need it, and succeed best without it.

The flowers are very graceful in form and delicate in texture, ranging through shades of mauve or lilac from light to dark mauve. When the plants are

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established, blooms are produced very freely, and I have seen as many as forty on one plant, showing out well among the leaves of a beautiful shade of green. These are inexpensive plants well worth growing in some quantity, for, as I said, by now, no doubt, many people are enjoying the flowers. In Hertfordshire I always looked for a handful by the middle of November, and was seldom disappointed. It is wise to gather them in the bud. They open in water quickly and well, and, if left to brave the disturbances of wind or drenchings of rain, may perish, the texture of the petals being very fragile. Three flowers spring from a single stalk, so one is apt in gathering them to destroy two flowers in securing the one first in bloom. It is therefore well to trace the stem down carefully to above where the thickening occurs, and thus be sure of doing no harm to the immature blossoms. These plants are often and inaccurately spoken of as *Iris stylosa*, and in many catalogues would be found under this heading; but *Iris unguicularis* is the proper name.

Another useful and charming plant at this time of year is a native of *Japan*, whence it was introduced in 1766. It is defined as a 'tender branching shrub,' but this gives one no idea of the deliciously sweetly scented flowers it produces in abundance just now. *Chimonanthus fragrans* is its name, and it is popularly spoken of as '*Winter Sweet*.' The derivation of the true name is from *cheimon*, the winter, and *anthos*, a flower, and it is by understanding the meanings of the names of plants that we are helped to remember them. The shrub is hardy, and the

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flowers, which are not very large, are of a waxy substance, whitish or yellow. These appear before the foliage. They are not very conspicuous for their colour or size, but for their delicious fragrance are unsurpassed. The plant succeeds best in deep, rich, sandy soil, trained against a wall or buildings having a south or south-west aspect. The blooms are produced on young wood, therefore prune annually. After the flowering season the specimens must be looked over and pruned in such a manner as to have the principal branches well clothed with young wood. This plant must not be, but often is, confused with *Chionanthus* (from *chion*, snow, and *anthos*, a flower). These are very charming hardy shrubs or trees. *C. virginica*, which was introduced from *North America* in 1796, attains the height of thirty feet. The flowers are white, and produced in May; and I only mention it now to emphasise the fact that it has little in common, and must not be confused with *Chimonanthus*.

One of the honeysuckles, or *Lonicera* (thus named, we read, after Adam Lonicer, a German botanist, 1528-1586), will shortly be in flower, and is so lovely it should be seen in every garden. *Lonicera fragrantissima* is the name of this delightful species. The flowers are white, small, but exquisitely fragrant. It was introduced from *China* about 1845, and is one of the most charming plants cultivated. There is a plant closely allied to this, and very similar to it, known as *Lonicera Standishii*. The leaves of the two species differ in shape and in the degree of hairiness, both are plants that may be well recommended. Another valuable shrub or wall plant now in flower is one of

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the Jasmines—*Jasminum nudiflorum* (naked-flowered), also a native of China, and brought into this country about 1844. This plant thrives in almost any position, is not at all particular as to soil, is a quick grower, and a hardy deciduous (not evergreen) shrub, giving an abundance of nice, clear, yellow flowers all through the winter. No more need be said to prove how valuable an addition this is to our collection of winter plants.

Many people like to have as decoration in their rooms fruits and berries of various kinds. Personally, I dislike them very much, and look on them as dust collectors of the worst form, and also helps to idleness, as they go on for weeks with no attention, collecting dust only; whereas, clean, fresh evergreens are always valuable for their brightness and wholesome cheeriness. But should we be wishing to decorate our rooms with fruits or berries, the brightest are from the Iris family. The native species, *I. fœtidissima* (very fœtid), or popularly called 'Stinking Gladwin,' has gloriously bright orange seeds, being very effective as decoration. This plant is found all over the south-west of England. The flower is very delicate but inconspicuous, while the fruit is striking in the extreme.

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XXXIV.

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January 8th.

NOTHING is more trying to the temper of the would-be gardener or more detrimental to the successful result of his efforts with his plants than being late with his work. A few weeks at an important time (like this month) mean more than we can realise. I know how hard it is to get all that is needed done at the proper season, and I suppose no gardener can ever fold his hands, and feel satisfied that everything is in the condition it should be; yet a struggle to keep up with the work is not a struggle in vain, when we note the difference that is evident when things have had time to mature properly at the right season. No enthusiast would, I fear, ever be satisfied even if he had well within his grasp all the work he wished to achieve, so I suppose we must rest content either to be lukewarm in our profession and at rest, or full of interest, and in a continual scramble and struggle to overtake and keep pace with the work each week brings with it.

In *January* there is so much to do. In the vegetable garden preparations for cropping, pruning, and getting in some early seeds should all be attended to. These proceedings are not exciting to the plant-lover, and I only mention them to prove that it is a busy month, and that if our gardeners claim time for work in their beloved '*kitchen garden*' we must spare

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it them, and realise that if we do not sow we shall not reap—and there are few things more annoying than an inadequate supply of good vegetables. I have known a mistress of a garden go out, and on finding her staff employed planting cabbage, stop the work, saying she wished none planted, and then, in a few months, demand and expect a supply for a large household. Now, is this reasonable? Let us then remember that January claims attention in the useful side of the garden as it does in the ornamental.

Of work among our flowering plants there is a great deal to be remembered—*mulching* borders, pruning (of shrubs lately out of flower), staking cuttings (last batch) of *Chrysanthemums*, and plenty of other work in the houses, such as potting on, and ‘changing over’ plants from one position to another; but all this is routine work, and probably needs no emphasising from me.

We may begin looking soon in favoured climes for a good many early flowers. Our *Anemone*, *Crocus*, *Snowdrop*, and others will all need a welcome before the month is out. And then there is the lovely little hardy Cyclamen (*C. coum*) to which we may look forward; and Christmas Roses (*Helleborus*) have been with us for some time, and how beautiful they are! I find it difficult to determine exactly the position that suits them best, for in the same garden I have seen them in great perfection on a sunny slope, and among *Bamboos* in a sheltered nook. There is always a fear that the purity of the flowers may get blemished from bad weather, and for this reason it is wise to place a hand-light over the plants. These should have been

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mulched about *March*. These plants belong to the *N. O. Ranunculaceæ* (so does *Clematis*), and are a great contrast apparently. The flowers are what is termed 'protogynous,' meaning that the female parts ripen first. In *H. niger* the perianth turns green after the flower has been fertilised. The largest form is *H. maximus*, and one of the loveliest is *H. niger*, var. *altifolius* (Europe), with very large, handsome flowers lined with pink, with a pink style, and a stem dotted with red. *H. antiquorum* belongs to the section popularly spoken of as Lenten Roses; the stems are nine inches high, the flowers of whitish green, and drooping. There are a good many other varieties, which expand in January and carry flowers plentifully.

The winter *Heliotrope* (*Petasites fragrans*) is by most of us looked on as a shocking weed (but then what is a weed exactly?), and our one endeavour is to rid our gardens of this pest. Yet I think, if the plant were rare and difficult to grow, we should be all clamouring for it. Just now, in favoured spots, the flowers are giving us their sweet blossoms and fragrance, and certainly the foliage is lovely; but for all this the Petasite root-stocks 'run' and spread so quickly I could not advise people to take it into their gardens.

There are some bulbous *Iris*es which are among flowers we may hope to see in January, and some with rhizomes (underground stems, emitting roots), notably the Algerian Iris, of which I wrote lately, and the curious green-and-black flowered *tuberosa* (section *Hermodactylus*) are among the early species.

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These plants are very inexpensive, most quaint, and interesting in appearance.

Violets have been in flower for some time, and are well understood by most of us.

It may not be out of place to mention here a few of the many species of plants now in flower in the open borders in the south-west counties: *Cobæa scandens* (luxuriant), *Eccremocarpus scaber*, *Maurandia*, *Lapageria*, *Veronica*, *Primula obconica*, and many others.

XXXV.

LOOKING AHEAD.

January 15th.

INTEREST in our plants has been in no way diminished by the weather, for our brains are busy considering various combinations of colours and genera for our borders next summer; and we are none too soon with the work, and must apply ourselves to the task without delay.

What was our scheme of colour last year; were the proportionate heights of our plants satisfactory; were the succession of blooms as we wanted them? All these are points to be determined, and, having made up our minds about them, let us begin ordering any *seeds* we want and see about *propagating* and '*getting into stock*' (as it is called) plants we shall be needing in any quantity, having, first of all, decided all the needful points about colour and so on.

What a blessing it would be to us all if some person artistic by nature and horticulturally educated

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would make it a profession to visit gardens, suggesting and designing colour schemes for the borders, considering aspect and position, the means of the owner, and the propagating capacity of the estate, and achieving the best possible result with the material at his disposal! Imagine for ever being released from the horror of having to admire a whole border of yellow *Calceolarias* and scarlet *Pelargoniums* (usually inaccurately spoken of as *Geranium*).

May I explain here one of the botanical differences of these two species? It is so interesting and instructive. Both these plants have flowers composed of a calyx (outside whorl) and petals, five in number. So far the flowers are identical. Now carefully and one by one pull the petals off the stem of a true geranium; all will be found equal in size, and all leave the same kind of scar behind them. Take now a so-called geranium, and pull off the five petals one by one, and what do you find? You find that the two posterior, or back, petals are larger than the others, and leave between them a tube, penetrating the stalk of the blossom, and thus differing from the flowers accurately spoken of as a *Geranium*, or Crane's Bill, a plant native to our islands, and proving the genus to be *Pelargonium*, plants chiefly from South Africa—a few from the Mediterranean district and Australia.

But now about the colour schemes, and the plants we want to get ready for the summer. *Pink* and *white* I always consider one of the most delightful of effects, and the flowers that may compose it can be depended on to last well into the autumn season. *Verbenas* are very charming for the purpose. They

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may be grown from cuttings, which root easily, prevention from damping being our chief care; or they may be raised from seed and many fine white forms thus be acquired.

The *Zonal Pelargonium* (defined as zonal because of the markings in the leaves) '*King of Denmark*' combines well with this colour, and there are several forms of *Clarkia elegans*, a native of *California*. These reach the height of about two feet, and may be grown from seed sown in the open in the spring and summer out of doors. When these plants are placed in their flowering quarters allow plenty of space round them, say nine to twelve inches, for they will spread. Then there are pink *Schizanthus*, graceful in form and charming in colour, and these, as well as the *Clarkia* and *Verbena*, may be had in white forms. But the most distinguished, new, and attractive species of all is *Rehmannia angulata*. The form '*Pink Perfection*' grows from three to four feet high. It has trumpet-shaped flowers of a good pink, the white throat spotted with brown. Here are a few suggestions for pink flowers. For a grouping of mauve and purple I would strongly recommend *Verbena venosa* (conspicuous veined). This plant is wonderfully effective, a native of Brazil, and growing two feet high. The flowers are of a fine purple in clusters. Give it good rich soil, put it out in May, and it cannot fail to please. It may be seen in several good gardens making a fine show.

Heliotropes, of course, are familiar to us all, and beloved by most. Purple *Verbena* can be used as grounding for these tall-growing plants, and for *Arctotis grandis*, a most glorious species, a native of

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South Africa, quite hardy enough to be planted out in a sunny position in our summer. It is described as having 'leaves soft, with a whitish, downy appearance, and slightly toothed. The flowers stand out well from the foliage, and in colour they are white, the centre of the disk being bluish, almost metallic. The under side of the petals is pale lilac.' The plant is easily grown, free flowering, and a continuous bloomer. It may be propagated by cuttings; or seeds sown early, and well grown on, will give good results. There are several orange forms of *Arctotis* which are handsome, but coarser than *A. grandis*. Here are a few plants in shades of mauve (and the list is endless), and these, with white, form a good, but not so lasting effect as pink; but mix a little orange with the mauve, and plants then come within your reach quite to be relied on till overtaken by frost.

The many shades in *orange* and *yellow* are very gorgeous. Mix these with white again and the bronze of *Coleus* and other foliage plants, and can you have anything more effective? There are two orange-flowered plants not very usually found in gardens. One forming fine clusters of blossom is *Streptosolen* (from *streptos*, twisted, and *solen*, a tube, referring to the form of the corolla tube). It is a native of Columbia: it thrives in common soil, but prefers a sandy one, and is propagated by cuttings. *S. Jamesonii* is the only species. It has magnificent trusses of deep orange flowers. *Mimulus glutinosus* and *Gazania* are other plants I should like to describe, but space forbids.

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XXXVI.

USEFUL SUBTROPICAL GROUPING.

January 29th.

LAST time I had only space to mention *Gazanias*, and now I wish to describe and recommend them in a manner worthy of their beauty. They are very useful for bedding in places where larger plants would be unsuitable. They are popularly spoken of as the 'Treasure Flower,' and belong to the *N.O. Compositæ*. There are about twenty-four species, for the most part natives of *South Africa*. The flower heads are large and handsome, chiefly orange, yellow, cream, or whitish in colour. These plants are easily *propagated* by cuttings made in the summer (by no means in the spring) from the base of the plant, and grown on in a closed atmosphere. They may also be raised from seed, and for a sunny position among bedding plants, cannot fail to please. Perhaps the most useful and popular forms are *G. Pavonia*, about eighteen inches high, introduced in 1864. Another good variety is *G. bracteata*, first grown in this country in 1894; and one later (1897), *G. bracteata grandiflora*, is even finer.

For still drier and more parched banks I would recommend all the *Portulaca* (or Sun Plant). These are low-growing herbs, with a hundred and forty-four cosmopolitan species (but especially in America) of brilliant colour. On sun-scorched banks these plants are exceedingly useful and effective, and I would

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advise every one who can grow them to do so. A packet of seed will usually give us all we want.

Gazania and *Portulaca*, then, are genera to cultivate now and enjoy in the summer.

There is a plant, *Dimorphotheca*, also from South Africa, which is useful and pretty. This belongs, as do the two preceding ones, to the *N.O. Compositæ* (the largest order of flowering plants; in fact, more than ten per cent. of their total number belong to it). *D. Ecklonis*, introduced in 1897, is the species which I prefer, and, I think, would be found very ornamental in most places. The flower-heads are about three inches across, and the petals are described as 'purple outside and ivory white inside,' the centre violet. The height of the plant is two feet or more; the leaves are somewhat shrubby. These half-hardy plants grow freely in well-drained loam, and are very suitable for outdoor work in summer and cool greenhouse in winter. There are annual forms which can be sown in heat under glass in spring, and planted out at the end of *May*. Perennial forms are easily grown from cuttings.

If possible, group with this *Spiræa astilboides floribunda*, a very vigorous and free-growing species, most useful for forcing, and valuable for its graceful effect when grown outside for a summer-flowering plant. It was introduced in 1891, and when more popularly known will be greatly appreciated.

To these two add *Eucalyptus globulus* (popularly known as Blue Gum Tree), and this will improve immensely the delightful, refined grouping I am describing. To have plants in prime order for our

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summer planting, the seeds should have been sown in *August*. The seeds of all *Eucalypti* germinate very freely if sown in a little heat, and if our plants are not already started they should be put in at once. Good seed is of the greatest importance, and is best procured direct from a Continental grower. Some species of *Eucalypti* are very touchy to handle, and in 'pricking out' of the seed pans sometimes need a little coaxing to become established plants; but *E. globulus* is the most to be depended on. They will seldom bear transplanting, and, if used as a subtropical bedding plant, will only survive one season. Care must be taken not to let them run the risk of exposure to early frost, for the wood of the stem is in its young stage very soft and succulent, and, once injured by frost, does not rally. For conservatory work these plants are valuable as decoration; they are inexpensive, and quickly reared.

Now for the grounding or carpeting of this group. For the most part, at present, the effect is white, and it is delightful to consider how to proceed. Shall we keep the whole composition white? Shall we fill in the spaces with dark foliage? Shall we give colour, and, if so, how? A good many plants could be used to continue the white effect. *Centaurea candidissima* and *Cerastium tomentosum* are nice, and, if only it could be procured in quantity, the variegated white form of *Aspidistra* would be delightful; and for our scheme of dark foliage carpeting I would suggest *Coleus Verschaffeltii*. This is one of the most effective crimson-leaved varieties, of which there are two forms, and care should be taken to secure the better.

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Then *Begonia* makes a charming carpeting for the class of plants I have been describing. They may be orange, pink, scarlet, or white; any and all are lovely from a colour (not a form) point of view. The culture of them is, I imagine, understood, and they never fail to please, when well grown.

XXXVII.

FEBRUARY.

February 19th.

THIS month a fresh supply of energy and enthusiasm seems to possess us, for the dead season is closing, and fresh life is waiting to develop on every hand, therefore a great deal of work must be brought to a close. As it is technically expressed, the sap will soon be 'rising' and buds bursting into growth, and it will therefore be well to finish all our pruning as soon as possible. Time is often needed to accomplish this in the way we know it should be done, and a whole year's beauty may be marred by overcrowding and ill-placed branches. The great point for the gardener to seize is, in my opinion, that he has it in his power to develop any welcome or destroy any unwelcome shoot. He can induce the specimen under his care to become almost any shape by watchful handling. He can 'rub out' eyes that would produce shoots in an inconvenient place, and by bending the stem at an angle he can stop the flow of sap running to the top of it. The eyes low down on the stem will thus receive extra supplies, delivered with extra force, and give an

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otherwise lanky, unfurnished branch a desirable appearance. Lately I received a plant of *Clematis indivisa* in a sorry, ugly plight, having grown at the top only of a long stem. I bent this, tied it to sticks about a foot from the ground, and now have two most promising eyes developing exactly in the right places. Here, then, is part of our work this month: prune our shrubs, look well over our plants, and try to produce perfect specimens.

Seeds are clamouring for our attention, and this is such a vast subject that several columns could easily be devoted to their culture. If sowings are to take place on any large scale, I would suggest that all the labels should be written first, and put by the corresponding packets of seeds. This saves much time and trouble. If the collection to be sown is small, it is well to put in abbreviated form on the label the firm or garden from which the seed was procured, also the date of sowing; or if you have a really large collection of sowings to make from different places, enter the various lists and details in a book (to do so alphabetically is not time wasted, since it makes reference easy), and not on the label, but mark each label belonging to a certain collection with a separate colour, stating (in the book) what colour it is. Thus at all times in looking over the seedlings you know immediately (by the splash of colour on the label) whence the seeds were procured, and an instant's reference to your book gives you the detail of the plant, for if you want to work thoroughly you should have entered there the habitat and natural order of the specimen. I am afraid this will be considered a very

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pedantic and fastidious way of working; but I can assure all those who have not tried it, that if once they begin to understand the scientific or thorough side of the profession no other will hold any charm for them. To be primed with a long list of the names of plants, either Latin or English, and to know nothing of their origin, is to deprive oneself of a very great joy. This, then, for the *labelling* of our seeds.

Of soils used for sowing, the varieties are endless. In all cases I recommend sterilising. Boiling water poured through it is efficient, but reduces the texture to an undesirable condition. Baking, I think, is very good. The difference between the cleanliness of the soils where sterilising has or has not taken place is very remarkable. For the destruction of insect life in our materials I can thoroughly recommend 'Vapourite.' It is most useful, harmless (except to insects), and clean.

I like the preparations of the pots or pans to receive seeds made the day before, and the pots stood in water till they have absorbed a sufficient supply to moisten thoroughly the whole contents of the pot, and for this reason. If after the sowing has taken place enough water is given to create moisture through the whole of the soil contained in the pot, the little, fine, delicate seed will either be carried too far below the surface or be denuded of all covering. Then in sowing, sprinkle the seeds on the surface *very* sparingly, and cover with twice the depth of seed in finely sifted soil. An almost inevitable error is to sow the seed too thickly. To keep it thinly scattered enough seems almost impossible. I have found a piece of glass

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placed over the pot to be a preventive of mossy growth on the surface of the soil. Care must be taken a little later to shade the seedlings. A useful plan is to fasten a piece of tiffany the length of the bench on two wooden rollers the width of the bench, one at each end, then the whole or any part of the pots can be shaded by unrolling the material as required. *Mice* are terrible intruders, and create havoc unspeakable in a single night. Last season they turned over several of my treasures, having the daintiness to nibble the little tender seed away, leaving the husk in the pot.

We should now be looking after our turf. Much can be done for the additional beauty of our lawns by attention to them at the right time. Tap-roots, as we know, must be removed entire or no good result follows. For this reason it is well to loosen the surrounding soil with a fork, then the roots can be withdrawn without a fracture. If we have been wise in storing all our refuse soils of the potting sheds, and so on, we shall find them wonderfully useful, mixed with other materials, for surfacing our lawns, and giving them the nourishment they need.

XXXVIII.

PLANTS ONE LOVES.

March 26th.

A LIST of these would carry one far beyond the limits of this short article, but the description and names of a few of them may be useful. Beginning, then, with *shrubs*, of species which are perhaps not as

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well known as they deserve to be, and which would, I think, prove hardy in most countries, *Hibiscus* (the old Greek name for Marsh Mallow) seems to me a very desirable plant. It belongs to the *N.O. Malvaceæ*, and includes about a hundred and fifty species, tropical and subtropical. The best form for planting out is *H. syriacus*, and this with its most charming varieties may be seen at *Kew*, where they will inspire all shrub lovers to try and grow them.

This species was introduced from *Syria* about 1596, but its exquisite varieties are of much more recent date. They are hardy, and succeed in ordinary soil, preferring that which is sandy, and a warm position. In Paris they are used to much greater advantage than one sees them in this country, and form a very striking feature of the summer plantings. As plants for tubs they are most valuable; and again it is in Paris that one sees them used for this purpose with quite excellent effect, and in the gardens of the Luxembourg Palace contrasting most charmingly with the big *Oleanders* (*Nerium*)—*Nerium Oleander* is the plant best known to us—Palms, and other genera. Of the forms of *H. syriacus*, *var. albus* is most striking, *var. 'Hanabo'* quite lovely, and *var. 'La Veuve'* a species very distinct and beautiful. But one cannot leave the *Hibiscus* family without mentioning the stove form, *H. schizopetalus* (cut-petaled). I do not know whence it appeared, but I have seen it flowering abundantly in *Ceylon*, and anything more fairylike and lovely it is difficult to imagine. The flowers are brilliant orange-red, hanging on slender stems. The petals are deeply cut and notched; and projecting some two inches or

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more from the centre of the blossom is the style, with the united filaments closely surrounding it. This species is quite a remarkable plant, and is worth taking a little trouble to see.

I feel I am transgressing if I enlarge on the beauties of stove plants, but cannot refrain from telling of the lovely effect of this plant grown in close proximity to the most glorious *Ipomœa* (Bindweed), as I saw it in Colombo. These flowers were of a grand glowing blue, and made a fine contrast to the *H. schizopetalus*. Which form of *Ipomœa* it was I never could find out, but it was far more intense in colour than *I. rubro-cœrulea*, which last summer charmed every one who saw it, and is, I believe, a native of *Palermo*. Another *Ipomœa* (also stove plant) is *I. digitata*, so called, I imagine, from the shape of its leaves. The flowers are large and pale mauve in colour, and of a much firmer and more substantial texture than is usual with this genus. It may be seen in the late summer twining round the rails in the water house at *Kew*. To see it is alone worth a visit there.

But at present I must refrain writing of stove plants, charming and fascinating as they are, and proceed with my list of flowering shrubs which are well worth cultivating, and would, I think, prove hardy. A quite lovely plant is *Carpenteria*. It belongs to the *N.O. Saxifragaceæ* (a truly astounding fact), and there is only one species, *C. californica*, which name denotes its habitat. This may be grown as a bush, but succeeds best under the shelter of and lightly fastened to a wall. The leaves are handsome and of a good rich green; the flowers have five petals, are white, with

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a good cluster of yellow stamens in the centre. It blossoms in *July*, and the effect of the shrub is quite charming. Unluckily, it is a difficult plant to *propagate*, and if any one has discovered a certain method of effecting this I wish he would let me know it. Possibly layers might succeed, but, so far, rooting cuttings seems to me a difficult proceeding. Since writing this I am told that the plant roots easily if a branch be drawn through the bottom of a pot, slit in the same way as for layering, and the pot filled with soil; the whole thing efficiently supported till rooted, and then detached.

Another interesting and effective flowering shrub is *Fabiana imbricata*. To give an idea of the effect of this species I must ask you to imagine a stately, well-developed Heath growing to the height of ten or twelve feet, each branch covered with pure white, heathlike flowers; and then I must ask you to imagine the amazement of the botanist on discovering that the plant belongs (by indisputable similarities) to the same order as a Potato!

Of another natural order entirely, and belonging to the same as all the Pea and Acacia tribe (namely, *N. O. Leguminosæ*), is *Robinia*, of which there are six species from *North America*.

R. hispida is perfectly beautiful, graceful in form and growth, the flowers delicate pink in colour. Care is needed in choosing a home for it, as its greatest enemy is wind, the wood being extremely brittle. It should be placed at the turn of a path or angle of a lawn, that the growth and form, or, as I expressed it some time back, the 'profile' may be seen; and these

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precautions (of profile effect) apply to that most graceful and delightful of shrubs, *Azara microphylla*. This really is very beautiful, with bright, dark green, glossy leaves. The growth of this shrub or tree is simply charming, the branching and graceful angles it makes filling one with admiration. The flowers, which are bright yellow, cluster along the back of the stem, smelling strong of vanilla; and botanically it is a most interesting species.

XXXIX.

ABOUT SOME BULBS.

May 7th.

THE bulbs used for forcing often get very cruel treatment after giving us their flowers, mainly because it is the custom to 'dry them off' then, and this is a bad custom, as a few words of explanation will show. In the genus *Narcissus*, for instance, each ripened bulb has in it two tiny immature bulbs, which will in their turn develop, each with two immature bulbs in them, and thus *propagation* will go on. When the bulb has flowered it has, to a certain extent, exhausted its supply of material, so that, instead of withholding air and moisture and all that tends to its nourishment, it is really the time when a little additional feeding would be most beneficial. Bulbs that have been forced we often see crowded together out of sight, and apparently out of mind; but we should do better for them if we watered, and in many cases fed them a little with artificial nourishment, such

ABOUT SOME BULBS.

as Clay's fertiliser or something of the kind. Narcissi that have stood in the ground some few years repay for a good sprinkle of chemical manure over their roots as the buds begin to swell. The supply and quality of the flowers will be enormously improved by this. Never gather the leaves of any precious specimen, for they are of great value to the plant, giving off undesirable material through the countless little mouths in their surfaces, and also by absorbing through other processes the material in the atmosphere necessary to their well-being.

In buying bulbs be sure to secure the best quality—that is, the flowering quality, for they are divided into three groups. The first season, when they are separately developed; the second season, when they have become more matured; and the third, when they have reached the flowering stage; after which they in turn will divide, and reproduce other bulbs, which will carry out this same process. It is often thought that a crop of bulbs has failed through overcrowding; the whole planting is dug up at the wrong time of year, and the result is not successful. What has really happened is this. The bulbs have reached the dividing stage, and were they fed and left undisturbed a fine crop would follow another season.

Narcissus should on no account be lifted before the leaves have turned yellow, and that is the proper time to take them up, when the leaves are withered, and at all costs before the roots have developed. Then they may be lifted with safety, and stored in any moderate temperature with an abundant supply of fresh air. In the early autumn they should be looked over, cleaned,

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and sorted—that is, the bulbs of different ages put together, thus insuring a succession of blooms, for those giving us flowers this year will be dividing when the second size are in perfection, the third size only attaining maturity.

The process with Tulip bulbs is not identical, but the same rule applies about keeping the leaves unharmed, and about feeding the bulbs at budding and after the flowering season. Thus we see the rule for forced bulbs is to continue after flowering to water and feed, diminishing gradually till none is needed—say three weeks or a month; and with bulbs in the ground feed a little, and be very cautious about the time of lifting them.

Amaryllis and that class of plant is now claiming our attention, if it has not already done so. When we see these starting into growth we know it is time to attend to them, unless they are going into a cooler house, and then it is well to let them flower first. The best soil for them is a mixture of loam, sand, leaf mould, and a little peat. Turn them out of their pots, which usually are full of roots, then very carefully remove the old soil with a pointed stick. This needs lots of care, for wherever the root is bruised it will certainly rot. Remove also the old roots from the centre of the base of the bulb. When this is finished, put the bulb back with fresh soil in the same-sized pot, pressing very firmly. Put the base of the bulb just below the level of the pot, so that it is not smothered in soil, which would be harmful to it.

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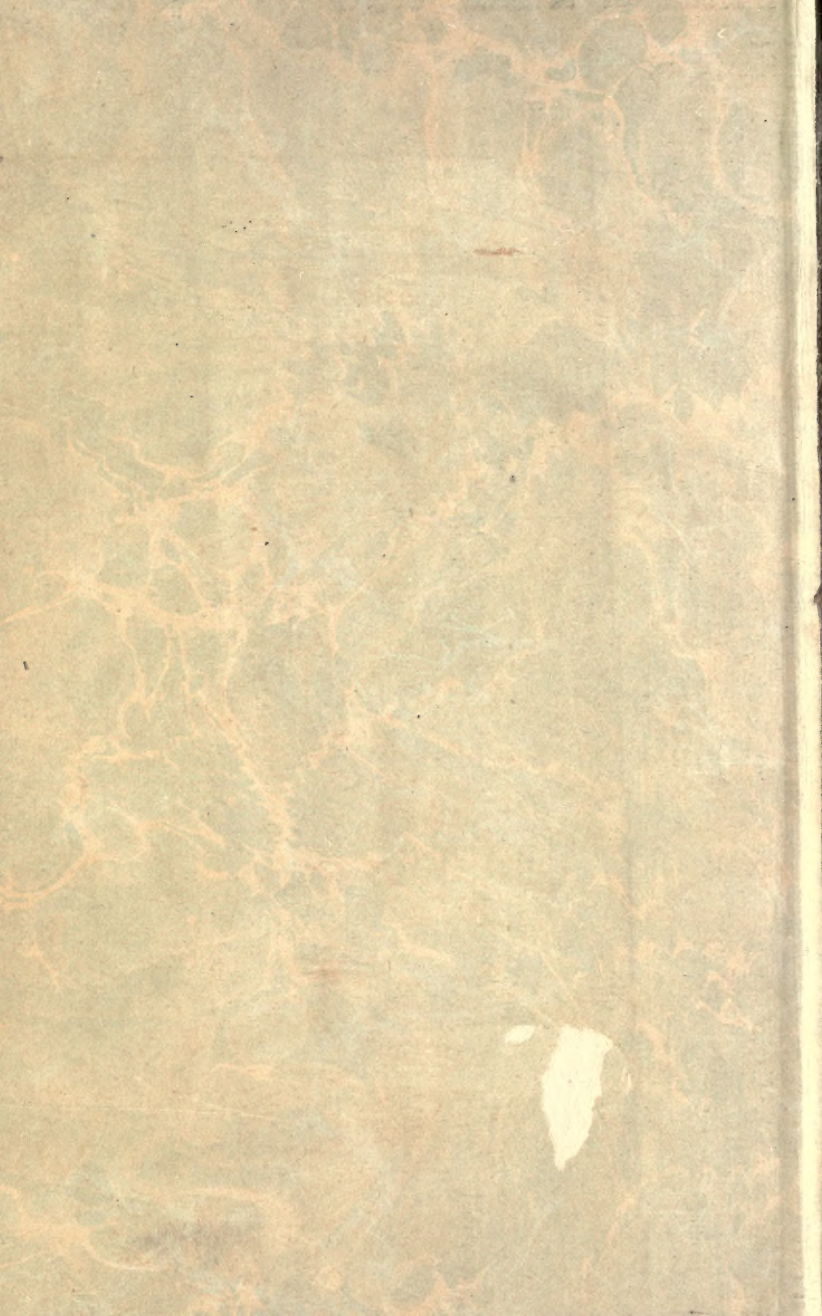
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